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A STUDY OF SOME CASES OF HYPERNEPHROMA*

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IN going over my records I find notes on 31 cases of tumor of the kidney, of the hypernephroma type, upon which I have operated, to which are added 6 cases that I have seen but upon whom someone else has operated, as well as 6 non-operative cases in which the diagnosis had seemed definite: 43 cases in all. A number of non-operative cases in which the diagnosis of hypernephroma seemed probable, but in which it was not proven, have not been included in this series. A study of these cases has brought out certain things that I believe are of sufficient interest to present to you.

In my use of the term "hypernephroma" I do not wish to be understood as attempting to take sides in the discussion which is now going on among pathologists as to the proper term to be applied to the common tumors of the kidney which we have for so long known as the Grawitz tumor or hypernephroma. I simply use this term to apply to the kidney tumors which seem so often to begin inside the renal tissue, are more or less rounded in shape, and for a time at least seem to be encapsulated and to displace the renal tissue rather than in infiltrate it: In this type of tumor extension seems, for the most part, to take place through the blood stream. To be sure local recurrence is common in these tumors and involvement of the abdominal glands is occasionally seen; conditions that would also speak for spread of the disease by continuity and by way of the lymphatics, at times.

One of the very striking things that a study of these cases has brought out is the great difference in the frequency with which these growths occur in men and women. In the 43 cases which I have studied 39 were in men and 4 in women: they have been practically ten times as common in men as in women. A study of the ages of these patients shows this type of tumor to be rare before 30, although one sees a few before this time, but it is common after 40.

It has happened that in this series of cases there were 25 tumors involving the right kidney and 16, the left. In one instance both kidneys were involved and in one instance my notes do not say which side was involved.

*Read at the annual meeting of the New England Surgical Society, Springfield, Mass., October 2, 1925.

The symptoms that patients with hypernephromata commonly show are hematuria, pain, and a mass in one loin. In my 37 operative cases, 33 have shown hematuria; 27 pain; likewise a mass was made out in 27 cases.

Hematuria has not only been the symptom that appeared most often but it has been the first symptom in a large proportion of these cases. In one of my cases a painless, causeless hematuria appeared 24 years before the disease seemed to become active; whether this bleeding was in any way related to the disease that appeared later, I cannot say. In another patient a hematuria appeared 6 years before there were signs of active disease. While an interval of one or two years was not uncommon, in one patient the bleeding appeared only three days before he presented himself and was the only symptom presented by a man from whom I removed a considerable tumor occupying the center of the kidney. The bleeding these patients have shown has generally been of the painless variety and of a type that one may speak of as erratic or capricious. It usually comes on suddenly and without apparent cause; it may bleed so rapidly that the bladder becomes filled with clot within a very short time and the patient suffers the pain seen in a bladder overdistended with clot. It is characteristic of this bleeding to stop suddenly and perhaps not to recur for some considerable time.

Pain may be an early symptom in these patients although it is somewhat less frequently seen than bleeding. The pain of which these patients with hypernephromata complain most commonly is referred to the loin. In some it is a dull ache, more a discomfort than a pain, which is the result of the distension of the capsule, due to the increasing size of the growth: in others, there is a more acute variety of this local pain seen during hemorrhage and this is due to distension of the kidney pelvis with clot. There is also pain which may be as low as the crest of the ilium or referred to the thigh of the affected side: this I assume is due to pressure on nerve trunks. In one of my cases practically the first symptom of the hypernephroma was pain in the patient's swollen left testis: this was so acute that the testis was opened. When it did not heal but increased in size, it

was believed to be a tumor and was removed. It was not until after this had been done that a large mass in the loin was discovered, the probable cause of the testicular tumor. The removal of the man's testis took place some little time before I saw the patient. There was no pathological examination of the specimen. Curiously enough not a single patient in this series showed a varicocele, so often mentioned as a common symptom of a renal tumor.

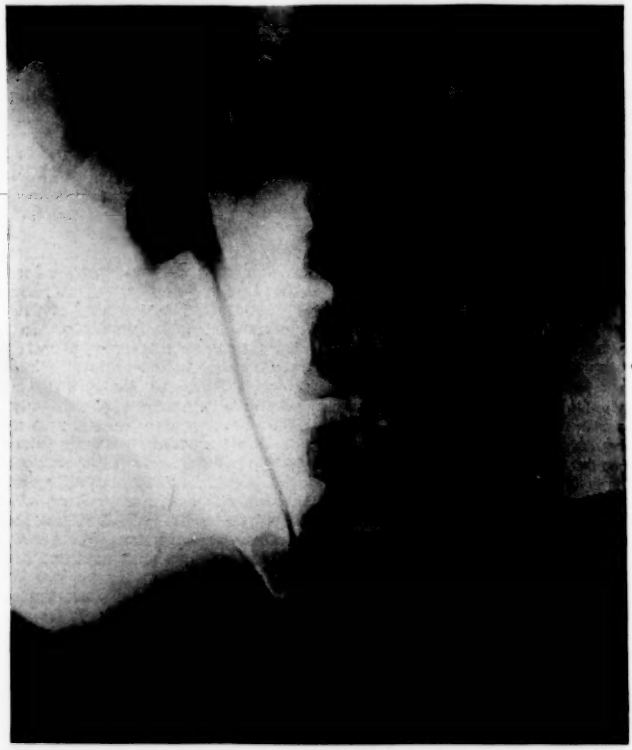


FIG I.

W. Age 37m. (A) Plate showing very marked deformity of the kidney pelvis with the fluid infiltrating the soft tumor mass which occupies the upper portion of the kidney.

The mass in the loin that was found in 27 of these reported cases was in most instances a mass that was palpable. In recent years, when we have radiographed all these patients suspected of having a kidney tumor, there has not been, so far as I remember, a single instance in which some distortion of the kidney has not been shown. In a certain type of deep loin it has occasionally been impossible for me to palpate a kidney even when an X-ray has shown it to be definitely enlarged and deformed. In a considerable proportion of cases a kidney tumor will be found to be immovable on palpation: this immobility does not necessarily mean that the tumor is irremovable. In patients that have shown movable masses the tumor has always been removable although in one instance a tumor of this sort was not removed because on opening the peritoneum it was found that there were already metastatic masses in the liver and glandular masses behind the peritoneum.

Most of the cases of hypernephroma that I have seen have presented more than one of the cardinal symptoms of hematuria, pain, and a mass. Thus *12* of the 43 patients showed all three symptoms, hematuria, pain and a mass, while *12* more showed hematuria and pain, and *11* showed hematuria and a mass, but no pain:

in the whole series there were only 3 who had hematuria alone; 2 had pain and a mass but no hematuria; 2 patients had only a mass. In two patients attention was called to the underlying renal process by the metastases they showed: one patient complained of a large mass involving the head of a humerus; the other, was the man with the testicular metastasis, whom I have already mentioned. Both these patients, however, showed more symptoms at the time I

FIG. II.

W. Age 37m. (B) Pyelogram of the removed kidney (Fig. I) showing more definitely the infiltration by the filling medium.

saw them: the woman with the humerus presented a typical renal tumor, while the man who had the testicular mass, showed a hematuria, pain, and a mass in the loin. In several patients who have shown a hematuria, this has been very slight indeed, almost negligible, and the striking symptoms had been pallor, loss in weight, and a tumor.

As to the results achieved in these cases; the six patients that were not operated upon are all dead. Nine of the 37 patients subjected to operation were known to be living and without evidence of recurrence within a short time; in addition there is one patient who could not be traced who was known to be well a year after operation; there is another patient who died of some other trouble ten years after operation without showing any recurrence; he must be considered a favorable result. Of the nine living patients there are six who have remained well four years or more; one for four years; one for five years; two for ten years; one for fourteen years; and one for nineteen years; the other three have been operated upon within the last two years.

Five of the 37 operative patients have died practically as the result of operation: One died the afternoon of the day upon which he was operated as the result of an injury to the vena cava and the consequent shock and hemorrhage. This patient was a man upon whom an unsuccessful attempt to remove the growth had been made several months before. A second patient died sixteen days after operation of sepsis; autopsy showed a subdiaphragmatic abscess and areas of purulent peritonitis, evidently secondary to this. A third man of 70, with a very large tumor, died on the table of shock. The fourth, who was very anemic, died within an hour of operation. He was an extremely poor risk, had been transfused before operation, but wished to have his chance. He died of shock and hemorrhage. The fifth patient died seventeen days after operation. This patient had a very large ureter on the diseased side which was tied off with chromic catgut. He began to leak urine through his abdominal incision on the eleventh day and it seemed as though sepsis and a pyelonephritis in his remaining kidney were probably the causes of his death. I assumed that after the absorption of the catgut ligature on his ureter there was a reflux of urine from his bladder into the area from which the kidney had been removed. There was, however, no autopsy.

Five deaths due to operation in a series of 37 cases is pretty large, especially when one considers that in five others of these 37 operative cases no attempt was made to remove the kidney. This was for the reason that in some of the cases metastases were evident; while in others the growth was so firmly fixed as to make it seem improbable that one could remove the growth without sacrificing the patient. It is only fair to say that these exploratory operations were among the earlier cases, seen some years ago; in no case in which I have attempted operation in the last few years have I found it impossible to remove the tumor.

The non-operated cases all died: we can, therefore, expect nothing from this sort of treatment. Some of the operative cases have done well, but too small a number. These results impress me with the necessity of adding to our campaign for the early recognition of carcinoma of the breast, uterus, rectum, and tongue, the importance of recognizing tumors of the kidney early and subjecting them to operation. Clinically these growths are more or less encapsulated and in an organ whose removal is a relatively easy procedure; not only this, but from the history, these tumors seem to be quiescent for a long time in many cases. The high operative mortality and the high percentage of recurrences are due, I believe, to late recognition of the condition. In the great majority of cases the first symptom of a kidney tumor is a hematuria, a pretty evident sign. To be sure, this hematuria may be very small in amount and there is a tendency to consider a small painless hematuria as of little diagnos-

tic importance. It seems to me our first task is to teach the medical profession at large the importance of hematuria; that it is never to be considered lightly until we have determined that it depends on some trivial lesion. The determination of the source of a hematuria is often very difficult especially if one sees the patient at a time when there is no bleeding. In one patient with a hematuria that proved later to have its source in a hypernephroma I, after a most careful study, first removed the man's prostate and then a granulating spot in his bladder, believing these to be the cause of his hemorrhage. I saw this man between his bleedings and at that time we did not have the help of pyelography. Nor am I the only offender. A man who had recurring hematurias and from whom I removed a good sized hypernephroma, was treated at one of our larger hospitals over a period of years, at times in the wards, at other times in the out-patient department, first for one thing and then another, without the source of the bleeding being determined. In still a third case a very competent man of my acquaintance removed a prostate under the conviction that the intermittent bleeding from a hypernephroma was of prostatic nature. I do not cite these cases in the spirit of criticism but as illustrating the difficulty of determining the source of a hematuria in the period between bleedings.

FIG. III.

B. Age 42m. (A) Pyelogram shows a marked wedging apart of the upper and lower calyces with absolute obliteration of the middle calyx due to pressing in of the tumor mass.

The source of a renal hematuria can be most easily determined if the investigation is made at the time of the bleeding. Unfortunately

there is a widespread idea that this is a poor time to investigate hematurias and many stay away purposely at this time. When there is no bleeding present, the use of the pyelogram is of the greatest help in determining the source of a hemorrhage that has its origin in the upper urinary tract; in a considerable number it will show a characteristic deformity in cases of hypernephroma. The passage of a ureter catheter to the kidney pelvis in the cases of a kidney tumor is often attended with a degree of bleeding that is suggestive.

FIG. IV.

B. Age 42m. (B) Pyelogram of the tumor in Fig. III after removal, showing a little more clearly the compression and deformity of the calyces by growth.

In the radiographic investigation of these cases either before a pyelogram is made or at that time one should make sure that the outline of the kidney is well brought out. This outline will almost invariably show an increase in size or irregularity of the kidney, even in the patients with deep loins in whom I, at times, can feel nothing. An irregularity in the contour of the kidney, as shown by the radiograph, especially a bulging in the center or a knob at one pole, should raise a very definite question of a hypernephroma and lead to an exploratory incision. Even in the cases where a definite tumor mass is felt, and this happens in a good proportion of advanced cases, there may be a misinterpretation of this mass which will lead to a still further delay in the patient receiving treatment. In a few cases I have known excellent observers to confuse a renal mass in the left loin with a spleen in spite of the fact that they could find no notch.

On the right side a tumor of the kidney has in two cases in this series been confused with a big gallbladder. In one case this led to a delay of about three years and at operation, though the mass was removable, it was not removed since there were masses in the liver and peritoneum. This patient had shown hematuria. In the other patient there had been a delay of two years due to misinterpretation of the mass but the patient made a good recovery and is well five years after operation. There had been no hematuria in this case. In these last two cases the mass seemed to be right under the abdominal wall and too movable to make it seem probable that one was dealing with anything but a gallbladder. Of course the question of the nature of a mass of this type could be easily determined by the deformity of the kidney pelvis that a pyelogram would show. The difficulty is to raise a sufficient doubt in the observer's mind to have this measure carried out.

The pain of hypernephroma is not characteristic especially in the early stages and we will get little help from this in arriving at an early diagnosis but must rely for the most part on the other two symptoms, hematuria and change in the size and contour of the kidney.

As for the technique one should employ in the removal of these growths I believe that in all but perhaps the very smallest tumors the anterior incision should be used. I employed it in 24 of the 31 cases I operated upon and in the last 17 consecutive cases. I use an incision through the rectus muscle of the involved side, rather nearer its outer edge; its length depends upon the size of the mass; sometimes it extends from the costal border well down toward the pubes. The posterior peritoneal layer is opened to the outside of the ascending or descending colon, according to the side involved. An advantage with this incision is that it allows one to see whether the liver or peritoneal cavity are involved and thus to avoid a needless operation. This incision not only allows more room but gives that room where it is especially needed, near the pedicle. One can locate the ureter below the growth, follow it up to the pedicle, and in some cases clamp the pedicle before one carries out the enucleation of the external and superior surfaces of the kidney. Theoretically at least, this putting off of much of the trauma until the vessels have been shut off should lessen the probability of setting free metastatic emboli. Another advantage of the anterior incision is that it allows one to see anomalous vessels going to the tumor. Sometimes these vessels are quite large and may go to the lower or upper pole of the kidney and be separated some little distance from the main pedicle.

If the plain longitudinal rectus incision is not sufficient to give an adequate field, one may make a cross incision toward the loin, without, so far as I can see in the cases where I have employed it, doing any harm. I feel that it is a great advantage to tie the pedicle, if this is

possible; I likewise believe it is essential that one ligature at least transfix the pedicle. In cases where there is need for great hurry or where I am in doubt as to the security of the ligature, I do not hesitate to leave clamps on the pedicle and find that with the exception of the discomfort they give the patients, there is no serious drawback to doing this. After the enucleation of a large tumor, as so many of these hypernephromata are, one should make adequate provision for drainage and carry a large drainage tube out through a stab incision made in the loin. If there is much oozing I pack with what I believe is a sufficient amount of gauze to control it. This gauze may be brought out the loin incision beside the tube, although I more often bring it out through the abdominal incision. In closing the wound I feel that it is wise to sew up the posterior layer of the peritoneum fairly securely, if there is time, although in cases where there is need of haste I do not hesitate to leave it practically open. I prefer to close the abdominal wall in layers but here again one may use "through and through" sutures if pressed for time.

A study of this series of hypernephromata leads me to the conclusion that our results are less good than they should be; less good than they will be when we see these cases earlier; that we have warning in the shape of a hematuria or hematurias, in many cases literally years before the growth begins to take on activity; that at this time these growths may be removed with little immediate mortality and with good prospect of no recurrence; that in order to see these cases earlier we must impress on the medical public more particularly, that no hematuria is to be looked upon as unimportant until it has been traced to its source and found to depend on an unimportant lesion; that a careful investigation of these cases will allow us to make an accurate diagnosis in most instances much earlier than has been the case in the past.

FIG. V.

W. Age 45m. Pyelogram shows a wedging apart of the superior and middle calyx by the ingrowth of a hypernephroma. Man well in January, 1926, two years after operation.

DR. R. F. O'NEIL, Boston: Dr. Chute's very excellent paper leaves very little to add in the

way of discussion, except to emphasize some of the points. Such results as he obtained in 9 cases out of 37, which have lived from three to nineteen years show, certainly that much can be done for these cases if we can get at them earlier.

These results are similar to those of a series of cases at the Massachusetts General Hospital, compiled by Dr. G. G. Smith and Dr. Shoemaker, in which nine cases out of 27 nephrectomies have lived from three to twelve years. The regrettable feature is that only 27 of 62 cases at the Massachusetts General Hospital were subjected to nephrectomy, the others not having been done because of metastases of cachexia.

The only way to improve on these results is by early diagnosis, and that means careful attention to the three cardinal symptoms of renal tumor:—hematuria, mass, and pain. The most characteristic and reliable symptom of renal tumor is generally supposed to be hematuria, though in the Massachusetts General Hospital series of operative cases a mass in the loin was more common than hematuria.

Pyelogram of left kidney, showing distortion of renal pelvis and calices from encroachment of tumor mass.

Hematuria from the patient's standpoint may be said to be a favorable symptom in that it generally causes him to seek an opinion. But this avails him little if the source of the bleeding is not accurately located and its cause determined. The examination should be made at a time when the bleeding is active as it is only in this way that renal hemorrhage can be surely diagnosed. A recent private case of mine well illustrates this. A man of sixty-five gave a history of hematuria four months previously. The symptoms were vesical there being some frequency and nocturia. The prostate was enlarged by rectum. Cystoscope examination showed a red irregular prostatic outline. He was not bleeding at the time. It was not until a second cystoscopy was done, this time during an attack of hematuria that the source of bleeding was found to be the left kidney. A pyelogram showed a markedly abnormal left renal pelvis (See Cut). It is in cases of this sort in the prostatic age that inference as to the source of hematuria is particularly dangerous.

As regards tumor mass,—a palpable mass in either loin demands investigation. Hematuria may be absent or in some cases so remote as to be disassociated with it in the mind of the patient and the physician as well. A pyelographic study of such cases would undoubtedly enable one to detect at times irregularities of the renal pelvis which would lead to diagnosis or operative exploration.

Pain alone is not so reliable a symptom. It may be of two kinds: a dull ache due to stretching of the capsule by the growth of the tumor, or of a colicy nature due to clots in the pelvis or ureter. When constant, it demands investigation. It is only by realizing the possible significance of any or all of these symptoms that we can get better results by an earlier diagnosis.

The operative approach should be by the anterior transperitoneal route, for these reasons: the pedicle is more easily reached, and there is less danger of forcing metastases into the renal vein; there is less trauma, and the retro-peritoneal glands may be palpated. These operations are always more difficult, causing a higher mortality than nephrectomy for any other cause, because of their size, extensive blood supply, and the incident of hemorrhage and shock from the manipulation required.

Dr. Chute reported five operative deaths out of 37. In the Massachusetts General Hospital series we had five out of 27. That is a high mortality, but I do not believe we are going to avoid it unless we can get these cases earlier.

No case should be operated upon if there are demonstrable metastases, that is, if the X-ray shows any metastases of the bones, lungs, or cranium, and such an X-ray study should be made of all cases.

Dr. J. D. Barney, Boston: I would like to emphasize three points brought out in Dr. Chute's paper, two of these points having an interest for the general practitioner as well as for the urologist. One is the matter of symptomatic varicocele which is a rare thing. I have seen three cases. One of those was striking. A man past middle life came to the clinic with a left varicocele of considerable size. Now varicocele doesn't appear in middle life. It disappears in middle life in practically every instance. This varicocele did not arouse suspic-

ion until one day somebody in the clinic happened to feel of the man's abdomen and felt a tumor. Further investigation then took place and it was discovered that he had a tumor of the left kidney.

In regard to metastases I would like to touch on a case I saw and which I have previously spoken about which is of importance. We had a man with marked hematuria come into the hospital. Spinal anesthesia was given for cystoscopic examination. When I came back to do the cystoscopy I saw the man lying on the table and asked that he be moved into a better position. I happened to put my hand on his right thigh and felt grating there and found that there was a fracture of the femur. An X-ray examination showed the bone to be replaced by new growth. The man subsequently had a hip joint amputation and the pathologist reported that the femur was riddled by metastases from a hypernephroma. The primary growth was in the kidney.

The third point is the diagnosis of small and early kidney tumors in the interval between attacks of bleeding. It is not uncommon to find a pyelogram so nearly like that of a normal kidney that we can't say it is abnormal with any certainty; also the appearance time of the dye may be as good on one side as on the other. No mass can be felt, there is no loss of weight, and for various reasons the X-ray may not show definitely the outline of the kidney. So unless one catches a man with that condition during the time he has hematuris, so that one can see exactly where the blood comes from, a great deal of delay and valuable time may be lost in making the diagnosis. Therefore, I wish to strongly emphasize the importance of making cystoscopic examinations during the hematuria.

DR. DAVID CHEEVER, Boston: I would like to have Dr. Chute mention the frequency of metastases to the liver. I thought that these growths metastasized to the lungs and bony skeleton and wondered how they metastasized to the liver.

DR. A. L. CHUTE, Boston (closing): In only one instance am I sure that a patient with hypernephroma presented metastases in the liver. In this patient I found nodules that were typical when I opened up the patient's abdomen with the intention of removing the growth. In this woman there were glands behind the peritoneum and the liver metastases may have come from there. I assumed that the abdominal metastases were from the kidney tumor. It may possibly be that she had some pelvic condition which caused these metastases. Hypernephromas undoubtedly do metastasize to the lungs more frequently than they do elsewhere.

Some patients with tumors of the right kidney present a liver that can be easily felt below the costal border and may suggest the possibility of metastases. In some of these instances this has seemed to be due to a tumor that involved the upper pole of the kidney and pushed the liver forward and down; under these conditions it is an annoyance at the time of the operation.

In cases of hypernephroma we have a growth that is often encapsulated and often ideally situated for easy removal and yet we do not get good results for the reason that they are not recognized early. They will not be recognized early and we shall not get good results until we can get the general medical public to appreciate the importance of the early investigation of every case of urinary hemorrhage.

COMBINED MEETING OF THE NORFOLK AND SUFFOLK DISTRICT MEDICAL SOCIETIES, DECEMBER 30th, 1925

The speakers were introduced by Dr. C. Morton Smith. Addresses were delivered by Dr. Francis X. Mahoney, Dr. Charles F. Wilinsky and Dr. John A. Ceconi. Discussions of the papers were submitted by Dr. Roger I. Lee, Dr. George H. Bigelow, Mr. Horace Morison, Dr. George C. Shattuck and Dr. Richard M. Smith. Remarks were made by Drs. Page, Rubin and Denny. The summing up was submitted by Drs. Ceconi, Wilinsky and Mahoney.

DR. C. MORTON SMITH: We can be proud of the record of our Health Department. Many of the health measures that are in general use throughout the country today originated in our own department. For many years the Board of Health was interested chiefly in the sick and largely in those sick with contagious diseases, and perhaps the earliest instance of preventive medicine was in the free vaccination against smallpox and the free distribution of vaccine virus. Dr. Durgin introduced the medical inspection of schools, some modification of which is used throughout the country. I am glad to say that there is a man at the head of this Department now who has been known to us for many years. He has been able to restore the oldtime loyalty and coöperation in carrying out the ideals of the old Board of Health and his achievements stand on record. It gives me real pleasure to present Dr. F. X. Mahoney, Commissioner of Health of the City of Boston.

PUBLIC HEALTH ADMINISTRATION IN BOSTON

BY F. X. MAHONEY, M.D.

I WISH to thank your President for the opportunity of bringing to the notice of this body some of the activities that are being carried on by the Health Department and which other Departments and organizations of this City are making use of in the prevention of disease, and the development of public health procedure, as taught and practiced at the present time in this country.

First of all, let me say that nearly all of the so-called old fashioned practices such as the quarantining of diseases dangerous to the public, the abatement of nuisances, inspection of food, milk, dairies and dairy products, tenement houses, lodging houses, removal of garbage, control of offensive trades, slaughter houses, inspection of dumps, etc., and there are many others, are still carried on, and must be, in the future, if, for no other reason, than that it is obligatory and called for by statute law. Added to these duties, are the modern methods of Public Health Administration, namely, the utilization of all the knowledge and means at our command for the prevention of disease and the prolongation of life. Without saying another word, you can easily and readily see that this is a task in which the medical profession as a whole, and the teaching staffs in our medical schools are and should be vitally interested in.

Little progress can be made along these lines unless the medical profession have confidence in and coöperate with the Health Officer of their respective communities and now more than ever. The degree of progress attained depends upon degree of acceptance by the practicing physicians, of the modern methods advocated by our leading Public Health authorities and used by the most progressive departments, and their coöperation. Therefore, I entreat you gentlemen, busy though you are with your individual specialties and practices, to set aside a few minutes a day before finishing your work, to familiarize yourselves with what your local Health Department is doing, which you can easily do by reading the *Monthly Bulletin* which is sent to you each month, and in helping us in our endeavors to the best of your ability whenever opportunity offers itself.

The programme of work now being done and contemplated in our public schools and in our health centers will be presented to you by Dr. John A. Ceconi, Director of School Hygiene, and Dr. Wilinsky, of the Child Hygiene Division of the Health Department. Boston is indeed fortunate in having two such able men in charge of such responsible divisions of health work, and their past successfully accomplished activities have already stamped them as leaders in their respective fields. The subject of health and health activity is a broad one and I will try to confine myself to some of the activities within the Health Department, especially where we have the active support and coöperation of other non-official institutions and agencies.

In any line of endeavor, we know that in order to accomplish the best results, a definite programme must be drawn up and followed, all forces working harmoniously towards a common goal, for the general good of all concerned. In health work, we must so plan and apportion the work that there will be a minimum of duplication of effort, time, and expense.

I have tried to carry on this plan in the Boston Health Department and I think with some degree of success. By working with all of the organizations, associations, and non-official agencies interested in health and social welfare, and linking them up with the official body, we have minimized the loss that occurred where duplication of work had previously taken place. In other words, the Department has endeavored to do a phase of work that would bring the greatest benefits to the people we are all trying to serve, at the least cost to the community in general.

The result of these efforts so far has been such as to make those qualified to judge, not only in this country, but elsewhere, express themselves in very commendatory terms. The principal and major reason for the existence of officers and health departments exercising their authority and functions in a modern manner, is the saving of human life. With plans now in use, we are trying to utilize our large nursing force to educate all those with whom they come in contact in their field visits, for example, follow-up work in the homes for the welfare of mother and baby, to systematize and educate. We hope in the near future, if possible, to develop a service that the practicing family physician may utilize. For instance, aiding him in his pre-natal work, as in his laboratory work by advising mothers of the necessity of frequently and regularly consulting their family physician during the period of gestation.

Vaccination against small-pox, has been and is now carried on to the best of our ability in Boston, and the vital records show the results of this work.

Diphtheria, once a terrible scourge, was combatted and partially controlled with anti-toxin, and toxin anti-toxin treatment was brought forth with the promise of almost 100% immunity from that disease, and therefore, the saving of hundreds of lives of children under five years of age from that disease alone. The past year will show an extraordinary decrease in the number of cases and deaths from this disease, in fact the lowest death-rate from diphtheria in the history of the City. As a practical and experienced health officer, knowing how conserva-

tive the medical profession as a body is, realizing how difficult it is to get the general public to acquiesce to anything new, even though endorsed by our leading medical scientists, anticipating vicious opposition from so-called liberty leagues and bodies of like sort, I seriously planned and consulted with my advisors and those already experienced in like campaigns in other cities, before starting anti-diphtheria work in Boston.

But our efforts were successful, and Dr. Ceconi carried out the programme with great credit to himself, and it may be said that it was one of the best pieces of public health work done in this country, and brought credit and renown to the Health Department. So, in this connection, I sincerely hope that the medical profession will coöperate in this work to the end that they will immunize all children under their care, at an age as young as possible, and encourage the parents to grant this permission in order that diphtheria may be banished. Family physicians, this surely is your duty, you in whom the family have entire confidence in, and it is only through you that all the babies can be reached. Our early conception of health work was the exercise of our authority and knowledge in caring for and trying to control outbreaks of sickness and disease after they appeared, whereas we now endeavor to prevent the occurrences of outbreaks, by instructing and educating the people individually and collectively in the causes of disease and the best ways to fortify themselves to combat the same, thus preventing any outbreak or epidemic, with its resultant misery, suffering, economic loss and death. All modern public health endeavors point this way. Modern study, research and experiment have replaced many old theories with newer, more practical, and common sense methods of procedure, and thus, we as physicians, should keep pace with the great progressive public health movement that has come forward and is functioning to promote health and preserve and prolong life. The Boston Health Department is endeavoring to develop a sound and efficient programme and earnestly asks the aid of the medical practitioners of this city in carrying its programme forward with the object in view of encouraging, assisting and advising, if asked to advise, all agencies concerned in the welfare and health of the community. Our goal is to educate the individual as to his own special needs, the importance of having his own personal physician examine and test his personal fitness, the same as he would have his automobile tested, if he owned one, and not wait until the ills of mankind strike him down at a time when he may be beyond medical aid.

Teaching parents the necessity and importance of not only bringing forth healthy offspring, but also giving the time and attention to the careful rearing and development of their child during infancy and childhood is surely a matter of first importance.

A matter of much importance to me is the establishment of a successful contact with the Medical Schools of our three universities, the manner in which they have joined with the Department in the carrying out of this teaching and prevention programme, and the utilization by their teaching staffs of the field opportunities of the Health Department in practical public health work, for their students, so that, now, men taking public health courses can obtain a practical training in all branches of health work in the field, in conjunction with their theoretical courses if they so desire.

Intensive work has been and is still being carried on in the laboratory, hospitals and in the field, in the study and control of whooping-cough, under the direction of a committee made up of Dr. Richard Smith, as Chairman, and Drs. Lawrence Smith, Zinnser, Rushmore, Bigelow and myself.

Studies in the treatment and control of scarlet fever are being carried on by Dr. Edwin Place, at the Boston City Hospital, and results of his findings will be utilized by this Department as soon as it is deemed advisable.

An added duty has been placed this year upon the Health Department, namely, the taking over the venereal disease work which was formerly done by the State Health Department. This is one of the most difficult problems that a Health Department has to consider and a great deal of time and study is being put into this work by the doctors directly in charge of that work. The Conservation Bureau, under the direction of Dr. Bradford, has been making some intensely interesting studies, and the results already accomplished by them along therapeutic lines, in venereal disease work show great promise for successful treatment of many conditions found in venereal diseases. It is our hope that in the near future, some practicable method can be adopted by which a great many cases, especially in children, can be relieved, not only in venereal diseases, but also arrested development.

While the Health Department is primarily interested in the avoidable diseases, it has also more than a passing interest in the unavoidable diseases of the middle and later life, which are called the degenerative diseases, and is doing all in its power to try and delay the time of onset of these diseases, so that they will occur later and later in life. It is my opinion that one of the best methods of accomplishing this is by frequent physical examinations by the family physician, who is more or less familiar with the habits of the various members of the families which are under his control and direction.

One of the ways that the Health Department is trying to aid in this direction is the constant

teaching instruction by our nursing force in the various homes they go to visit of the great necessity and importance of these examinations with the hope that we can get the people to start these examinations early in life, so that their own physician can detect any trouble before it is too late for treatment. In this way, it is hoped that early cardiac cases, renal, tuberculosis, malignancy, caries teeth, faulty posture, obesity, etc., etc., may be discovered in time for help.

I have not burdened you with a great mass of statistics, because I have no desire to tire you. I have simply touched on some of the activities met with in Public Health work, and as I have said before, unless I have the coöperation of the general practicing physicians, it will be almost impossible to make any gain. I earnestly request your aid in whatever endeavors I may elect to carry on in my desire to attain the end which I know is mutual, namely, the betterment of the health of the people of Boston.

May I, in return, place at the disposal of the medical profession, every facility of the Health Department to aid them in carrying on their work.

MUNICIPAL PREVENTIVE MEDICINE

BY C. F. WILINSKY, M.D.

It has, indeed, been well said that Public Health is the foundation upon which rests the happiness of the people and the welfare of the Nation and in giving thought and study to the development of a sound child hygiene program, a very important and necessary service in community health organization, we are only exemplifying an ancient appreciation of the potential and relative value of the healthy child as a factor and we are presuming now, as did the wise men of Greece and Rome many years ago, that national future rests upon the foundation of healthy childhood.

There is, of course, a striking contrast from the days of old, which prescribed leaving to the judgment of the parent or the State whether a child might be permitted to live, to the modern theory of concentration on every recognized effort to build up the malnourished youngster and make him a useful citizen.

No one can question the value and importance of this appealing work, and we heartily agree that every child has a right to be born well, although, unfortunately, this cannot always be realized because of social conditions and ignorance.

To definite groups and individuals is entrusted the responsibilty of maintaining community health, and their problem is to determine the necessary functions and services and the methods to pursue in order to most economically accomplish the best results.

The real romance in medicine is the prevention of disease, and there has been developed in the United States a fixed appreciation of certain essential, specific services and the need of the same in order to develop a better standard of child health. Public and voluntary agencies in various communities are more or less endeavoring to develop these services.

As the primary purpose of modern health department practice of today is the prevention and control of disease, and as the health of each adult generation is in a marked measure dependent upon the health of the children of the preceding generation, it is reasonable to presume that a health department must concern itself seriously with the development of a sound child hygiene program. The value of better child health is so firmly established that it should no longer be the obligation of voluntary agencies to carry on a piece of work which has a bearing and relation upon the community and which ought to be supported by the same.

A STUDY OF CHILD HEALTH PROGRAMS

Studies of child health programs of the eight largest cities of the United States reveal a keen and proper appreciation of the value of sound child health work. The reports from these cities evaluate properly the factors which combine to create a higher standard of health among children, but invariably there is frank acknowledgment of inadequate budget for sufficient personnel and equipment for necessary extension and expansion. This limitation hampers appreciative, intelligent and well meaning health officers in their endeavors to build and promote proper and adequate service.

We also find in many communities marked lack of coördination and correlation between agencies engaged in health work. This is evidenced by several groups engaged in the same phase of endeavor, creating duplication and waste effort, and resulting in the following conditions:

(a) Some work is being well done, but not in sufficient volume to supply the necessary service for the entire community.
(b) Some essential service is entirely lacking, while some other piece of work is being done by several groups.
(c) Lack of sequence and continuity of health service, essentially necessary throughout child life.
(d) Absence of a necessary function creating a gap which, in a marked measure, nullifies the work already done, and interfering with the possible value of the services to follow.

The absence of a fairly complete continuous and properly functioning program, preventive in type, is usually due to insufficient personnel and lack of properly organized machinery for the prevention of duplication, and for the en-

dorsement of worthwhile functions. It is pertinent at this time to focus attention upon the urgent necessity for the organization of this machinery, not only for the coördination of effort and correlation of service, but also to create favorable public opinion which is a most powerful factor for the development of necessary services.

When we know that there are fairly definite factors responsible for high infant and maternal mortality rate, it should not be difficult for properly constituted groups to create favorable opinion for the development of such necessary services as will solve, in a measure, the above mentioned problem. While we cannot be expected to encourage faddism, it should not be difficult to expand in the direction of the establishment of services and functions that have a bearing upon the reduction of morbidity and mortality.

A LIFE SAVING PROBLEM

Now, how may we raise the standard of community health, and with what program may we save the greatest number of lives? Doctor Emmett Holt has said that "infant mortality was evidence of human weakness, ignorance and stupidity." Other authorities of record declare that saving babies is not difficult if we develop a baby saving program. Surely, no health officer can afford to ignore this challenge.

INFANT AND MATERNAL MORTALITY

Studies of vital statistics show an appalling loss of life with fairly recent figures giving an annual infant mortality of approximately 190,000 under one year of age with over one third dying during the first month of life, the majority from prenatal and natal causes. To this may be added an annual maternal mortality of 20,000.

If we are reasonable in our presumption that upon the foundation of better infant and child health we may rear stronger men and women, and if there is a proper appreciation of the need of saving the life of the mother so that she may properly rear her child, we then may honestly presume that money will, indeed, be wisely and humanely spent if appropriated for the possible remedy of the deplorable situation revealed by the above figures.

FACTORS IN REDUCTION OF INFANT AND MATERNAL MORTALITY

Some powerful factors which play an important part in the reduction of infant and maternal mortality are prenatal service, periodic examinations, supervision of children by the family physician or at the child health clinics and health education.

Every one is familiar with the benefits resulting from a properly functioning prenatal service, with resulting diminution of maternal mortality, smaller number of difficult labors, lesser number of still births, diminished infant mortality and fewer defective children.

The value of child health clinics, now established in many countries of the world, cannot be over emphasized. These conferences, to which mothers bring their children, present an opportunity for both physician and nurse to emphasize the value of breast feeding, and here the mother may obtain correct appreciation of proper modified feedings, and here is stressed the fact that this feeding should only be indulged in when breast feeding is impossible. At this clinic, the child may be periodically examined and defects noted, with plans formulated for the correction of the same, so that a healthy child may be turned over for the period of school life.

The biggest factor to contend with in public health work is ignorance, and the answer to this problem is health education intensively carried on in the home through the disseminating influence of the physician or public health nurse. One at all familiar with New Zealand's low infant and maternal death rate is aware of the potential value of health education, which today is regarded as a necessary and active function of the modern health agency. It is not out of place at this time to express belief that proper health habits developed in early childhood, not only may be expected to remain through life, but will be passed on to succeeding generations.

The solution of proper development of health education lies in the employment of an adequate number of well trained nurses interested in this work, who will carry and interpret health principles into the home.

It is reasonable to claim that a child health program should include services of proven value from the beginning of the prenatal stage through adolescence.

REORGANIZATION OF A CITY CHILD HEALTH PROGRAM

A child hygiene division was first created in the Boston Health Department in 1910, and was to be concerned with the physical welfare of every child from conception to the age of sixteen. It divided its work at that time into prenatal and postnatal care, medical inspection of schools and physical examination of licensed minors.

In 1915, the medical inspection of schools was transferred to the School Department and that aspect of the work is now being carried on under the official leadership of Doctor John A. Ceconi.

While the Health Department continued to carry on a child hygiene program it was really a supplementing and duplicating service of the Baby Hygiene Association, a voluntary agency

occupying a prominent position nationally in this phase of health work. This Association conducted 22 stations; employed a personnel of approximately 70; and for years, carried on very efficient work which was consolidated with the Instructive District Nursing Association a few years ago, creating the Community Health Association.

In September 1924, the Health Department accepted the responsibility of developing and carrying on the child hygiene program so far as it related to the baby and preschool age child, and took over from the Community Health Association all but five of these stations. These have now been taken over and the City assumes full responsibility of all the work.

This entails the carrying on of approximately 45 weekly child health conferences for children from birth through preschool age. From the personnel of two nurses in 1910, making about 300 visits a month, the work has so developed that approximately 70 nurses have made over fifteen thousand home visits in November 1925, with an attendance of over 4,000 children brought to the child health clinics during the same month.

Prenatal service is being carried on by voluntary agencies, which include the Boston Lying-In Hospital and other maternity institutions who have decentralized examining and supervising service in various sections of the city, with a greater part of the follow-up home visits conducted by the 120 nurses of the Community Health Association. The Health Department personnel assist in every possible manner in the development of favorable opinion as to the relative value of this service.

Acting upon information derived from birth registration and any other available source, new born babies are immediately visited by a Health Department Nurse, in whose district the baby resides. Every effort is made to interest the mother in medical supervision of her child, either by the family physician or at the functioning child health clinics all over the city, and the baby is periodically visited in order to obtain the mother's coöperation. 15,000 new born babies have been visited in this manner this year.

Ophthalmia Neonatorum receives very careful consideration and every baby showing a positive infection is immediately hospitalized, unless there is proper assurance for adequate treatment at home.

The nursing staff is continuously carrying on home health education for children up to the age of five, this personnel being headed by a Director of Nurses and Supervisors. Boston has a preschool age population of approximately 100,000 and we believe that our staff in numbers compares very favorably with accepted standards of necesssary personnel for adequate and proper supervision. Our nurses are able to make periodic home visits frequently enough to correctly interpret in the home the value of certain health measures.

A sufficient number of additional nurses are doing communicable disease control work.

MEDICAL SUPERVISION

The medical supervision of the infant and child hygiene work is in charge of professors of pediatrics of the Harvard University Medical School, Tufts Medical School and the Boston University Medical School. This Advisory Committee appoints approximately 30 pediatricians from their teaching and hospital staffs to conduct the weekly health clinics. This plan assures the Health Department and the children of Boston the highest type of pediatric service with the finest of supervision, and officially links up the municipality with three Class A medical schools, and furnishes a training opportunity for the medical students of these institutions. The universities regard this as an excellent opportunity to teach preventive medicine, and are availing themselves of it.

The mother brings both the baby and the preschool age child at the same time to the conference and *one physician* sees both children. This has been found to be a more efficient method than conducting two different conferences, and the mother being obliged to either make two visits or to get advice from two physicians on one day. This plan is easier for the mother and stimulates her interest in the preschool child. We must remember the importance of developing a preventive medical program for the so-called "neglected age group" and everything that we can do to simplify the method and interest of the parent is of incalculated aid.

At these conferences, vaccinations, Schicking, toxin-anti-toxin administrations, etc., are carried on.

ADDITIONAL SERVICES

Trained nutrition workers and dietitians supervise a nutritional program, and delegate to the nurses of the Department instructions to be carried into the individual homes. Special or difficult problems are submitted and solved by the nutrition workers who also carry on a health educational program in organized classes which include cooking, little mothers' classes, health playlets, etc. To this there is also added recreation and organized play.

Prophylactic posture clinics are being maintained at the Health Units.

DAY NURSERIES

In addition to the physical examination and supervision of day nurseries the Health Department furnishes its nurses who visit periodi-

cally the day nurseries and examine the children.

DENTAL SERVICE

Through a coöperative arrangement with the Forsyth Dental Infirmary, dental service, prophylactic in type, is furnished to expectant mothers, preschool age children and youngsters of the earlier school grades. While the Health Department financially supports this work, it is being carried on under the direction and supervision of the Director of the Infirmary who selects the functioning personnel and has charge of their methods, technique and program. This assures a very efficient standard.

A mental hygiene program is conducted under the heading of "Habit Forming Clinics," and is under the supervision of Doctor Douglas A. Thom, of the State Department of Mental Hygiene.

HEALTH UNITS

A complete program necessary for the maintenance of a satisfactory standard of community health involves social, hygienic and economic factors and phases. No municipality is officially solving all of the above problems. It compels us, therefore, in order to diminish sickness and save lives to work in accord and very close coöperation with the well organized machinery dealing with community health and welfare, as well as with voluntary agencies engaged in child health work, and the success of such a health program depends materially upon this close alliance. The organization of coördinated machinery cannot be over emphasized and in this, Boston, we feel has been fortunate.

In 1916 concurrent with the early development of health centers in the United States, there was started in the West End section of Boston the Blossom St. Health Unit. This development was the result of a meeting held at the home of Doctor Richard Cabot, and attended by Doctor Mahoney, the present Health Commissioner, the writer, and representatives of health and welfare agencies. It was felt that an effort to correlate the work of the various agencies, so far as was possible to bring them together under one roof, would be of immeasurable advantage not only to the community but to the agencies engaged. The close connection between poverty and disease called for a tie-up between physicians, social workers and welfare agencies, and that this be accomplished to the best advantage through the correlation developed in the health center.

It was felt that the health units could serve as decentralized branches of the Health Department which would bring to the very doors of the community the various worth-while and essential health services and that it would be of advantage to bring together the various health and welfare agencies engaged in their district, thereby, eliminating confusion and duplication of effort and present an opportunity for the neighborhood to acquaint themselves speedily with where to come with their health and welfare problems.

The work carried on at Blossom St. since 1916 justified, in the opinion of the trustees of the George Robert White Fund, the extension of this work in such sections of the City where such an institution of this type seemed ideally necessary. In addition to Blossom St., the North End Health Unit, the first one erected from the income of this most generous bequest, is now carrying on a complete program. A third unit is now being built in East Boston, and land for the erection of another one in South Boston has just been purchased, and other sections of the City are under consideration.

Housed at the units are the public and voluntary health and welfare agencies, who are carrying on a program which includes prenatal service, baby and child health conferences, dental service, posture clinics, nutrition and cooking classes, mental hygiene, periodic health examinations, health education, etc. The presence of the welfare agencies maintaining headquarters at the health units furnish an excellent opportunity for direct contact and expeditious solving of health and welfare problems. To the health unit, the school nurse brings children for dental service, for tonsil and adenoid examination and such other valuable service, which in the judgment of the school physician and school nurse lies within the province of the health unit.

The coöperation of general practitioners in the neighborhoods where the health units are located is sought, and their assistance in the carrying on of some phases of the work is solicited. The health unit is intended to serve as an institution committed to the prevention of disease and duplicating no effort of any other existing agency. Its purpose is to emphasize the need of such service which is conducive to good health and to refer to the general practitioner or to the hospital all cases requiring curative treatment.

It endeavors to point out to the individual, not only the value of good health, but the certain necessary measures for the elimination of existing and remedial defects.

Physicians in the unit, where the health unit has been functioning, have already testified to an increasing demand in their office by their patients for some of the preventive services advocated by and carried on at the health units, and those responsible for the policies of the units are constantly making an effort to acquaint the laity of an ability to obtain the various prophylactic services from their own physicians.

DISTRICT WORK OF THE MEDICAL INSPECTORS

In addition to the district services of the health units, the city is divided in sections, each one in the charge of a medical inspector (part time), fourteen being employed in the Department, who may be visualized as the health officers of their districts. His responsibilty is communicable disease control in his area. He quarantines and releases cases. In addition to this, he vaccinates, Schicks, administers toxin-anti-toxin and performs such other health measures as may come within the scope of his duties and for the best interests from a health point of view of his particular district. Approximately 120,000 toxin-anti-toxin administrations have been given to 50,000 children by medical inspectors. Communicable disease nurses, already alluded to, periodically visit the homes previously quarantined by the medical inspectors and pass upon the carrying out of the regulations.

The entering classes, approximately 4,000 children, in the parochial schools receive toxin-anti-toxin for immunization against diphtheria by the medical inspectors of the Health Department, upon written consent by the parents.

CONCLUSIONS

The fundamentals of child hygiene are quite firmly established and rest upon a sound foundation, and while we cannot always solve social problems of poverty which play a part in infant and child health we can, in a measure, offset ignorance by health education.

An effort to keep babies well plays a part in the reduction of infant mortality, and every preventable disease issues a challenge to a health department, which the latter cannot ignore, and it becomes a municipal obligation to establish all such services preventive in type which are conducive to better child health.

The success of this program will depend upon the development of a continuity of recognized essential services, beginning with prenatal, and to include child health clinics with its chain of periodic examinations, nutrition, dental service, mental hygiene, posture, etc., with continued supervision through school life and adolescence.

Development of organized pediatric service at the child health stations, which should furnish teaching opportunities for medical students, as well as the general practitioner, resulting in the development of an interest in periodic health examinations and general supervision of the healthy child, with the hope that these services may be regarded as the legitimate field of the general practitioner, and that there will be an increasing desire by the latter to practice this type of medicine.

Prevention of disease must be thoroughly emphasized by a campaign of health education carried into the home, through the medium of an adequate and well trained nursing personnel and the family physician.

It is imperative that there shall be no gap created by a missing necessary service.

All necessary functioning agencies should correlate their endeavors so that there may be an avoidance of duplication, confusion and misunderstanding and wherever possible all groups engaged in health and welfare work should be assembled under one roof, developing in this manner daily personal contacts which insure speedier and better solutions of joint problems.

Official leadership should be vested in the Health Department with the voluntary agencies backing up this body in the carrying out of all necessary and worthwhile services.

Our objective should be the turning over into the able hands of Doctor Ceconi and his school personnel for supervision a group of children physically fit for school life.

No one can question the humanitarianism of the members of the medical profession who have unselfishly given of their time and efforts for the good of humanity, and we feel that the physicians of Boston endorse the work of the Health Department in its endeavor to reduce disease to a minimum and to save the lives of children.

We must remember that the children of today are the men and women of the future. If we are able in a measure to prevent future illness by laying a foundation of good health during childhood, we must frankly acknowledge that it is our duty and obligation to develop such services as will accomplish this result.

MUNICIPAL PREVENTIVE MEDICINE AS APPLIED TO THE SCHOOL CHILD

BY JOHN A. CECONI, M.D.

Director Dept. School Hygiene, Boston Public Schools

Mr. President, and Members of the Suffolk and Norfolk District Medical Societies:

I FEEL quite sure that I share equally with you the pleasure and even the pride of listening to a record of the accomplishments of the Boston Health Department in the past, and to a greater degree the assurance of the benefits to be derived from their correlative and harmonious work in the future; no man can gainsay any of this.

It appears to be, however, the expressed desire, not only of this State but of many other States in this Union, that, there shall be school physicians, that there shall be school medical inspections, physical examinations of school pupils, etc., and in the State of Massachusetts, and in some queer old fashioned way it seems that this work must be done by those only whose

training qualifies them for the work, namely, school physicians.

Gentlemen: there are newer styles in physical examinations in some cities in which, if you please, physical examinations, examinations of the skin, examinations for goitre, are made by others than physicians, and they are going even so far as advocating the use of the stethoscope by teachers.

Of course, after listening to the preceding papers one might almost be tempted to wonder what was left for the mere general practitioner or school physician to do, but I wish to state now and here that the duties of the school physicians were regarded in 1914 of so especial character that the present Health Commissioner, who at that time also functioned in that capacity—with a fine conception of its needs and the broadest vision of its future—of himself divorced the school physicians from the Health Department that they might function to better effect in the administration unit in which it may properly be said to belong, namely, *The Department of Education (The Boston Public Schools).*

That the succeeding ten year period, namely from 1915 to date, has demonstrated in no uncertain way the keenness of Doctor Mahoney's vision and foresight, is verified by the fact that the great majority of cities and towns in the registration area of the United States have followed this plan of placing the medical inspection of school children under the Boards of Education.

It would, therefore, be scant justice if it were not at the moment a source of great personal pleasure to me to make clear to you the perspicacity and intelligent comprehension shown by our Health Commissioner so many years in advance of the general understanding. At about that time, then, the Department of Medical Inspection of schools began to function as a unit per se in the Boston Public Schools.

Before proceeding to present what its accomplishments in the past have been or what may be reasonably expected of it in the future, may I be permitted to digress for a moment to bring sharply to your attention a most valuable adjunct to the Department of which I happen to be the Chief—namely, the establishment through the generosity of one of Boston's most public spirited citizens, the late Mr. George White, of Health Centers, two of which are established in the North and West Ends of this City and another shortly to be established in East Boston.

You have just had the pleasure of listening to a partial record of what these Health Centers have done, what they can do and what they hope to do for the children of Boston of preschool age. There can be, I am sure, no better place or no more fit time for me to express the hope that the Deputy Commissioner in charge of these units will meet with the success he so sincerely strives for in the fullest measure.

The foregoing facts have been drawn to your attention, and it having been established that so far as it is humanly possible in this City, through the activities of the Boston Health Department—no child shall be born that is not well born, and no child so born shall reach the public schools susceptible to those ills to which children are peculiarly heirs without active immunization having been properly provided for and attained—that no child shall appear for matriculation in school without every effort having been made to secure for him the maximum state of good health,—good nutrition, and mental receptivity. Now, the question naturally presents itself, "What is there left for the schools to do?" Perhaps this would best be premised by a brief resume of what the Department of Medical Inspection has done in the ten year period namely from 1915 to 1924, inclusive, —or in other words from the time of the divorce proceedings from the Boston Health Department to the Department of Education. Briefly, the activities have been as follows: Number of physical examinations—1,089,512; number of children with defects—488,859. The specific defects are as follows: Defective nasal breathing—57,741; Hypertrophied tonsils—143,463; Defective teeth—452,897; Defective palate—1,073; Cervical Glands—52,357; Pulmonary Diseases, tb. and non-tb.—3,959; Cardiac Disease, organic and functional—34,630; Nervous Disease, organic and functional—1,925; Chorea—239; Orthopedic defects, tb. and non-tb.—17,568; Skin—18,335; Evidence of having had Rickets—1,809; Malnutrition—25,160; Grand total—811,387 defects. In addition to these there were over a million and a half medical inspections, a total of 2,589,512 physical examinations and medical inspections made by these school physicians. These figures relate to the entire school population. Corrective work relates to elementary and intermediate districts because it is in these grades that a nursing personnel is provided. The school physicians, principals, and teachers of the high schools, however, functioned by referring to the parents the physical defects found in this group of pupils, and in addition were very helpful in referring these defective cases to the family physicians for the institution of proper treatment. The following nursing statistical report shows the work of the school nurses in elementary and intermediate districts: Emergency treatments in schools 296,884; Consultations with principals, teachers, and pupils in school 4,500,000; Classroom talks 124,455; Home visits 327,795; Visits to institutions for clinical treatment of pupils 473,655; Pupils having all dental work completed 340,299; a total of 5,722,789 activi-

ties in the nursing field. In addition to this, social service work shows the following: clothing, glasses, medicine, X-rays, hospital admissions, vacations to parents and children, employment for parents and pupils, Christmas dinners; all these to the indigent. For instance, over $800 was spent for these purposes at Christmas time last year, and this year over $1100 was spent. There were 136,531 physical examinations made of children applying for certificates of employment and 128,861 of this number were granted certificates. This makes a grand total of 8,448,832 activities performed by the school physicians and school nurses in the Department of School Hygiene. Not a mean effort,—gentlemen,—real, honest, and efficient preventive medical work.

This, gentlemen, is historical, a simple recitation of facts and findings, but it must be remembered that all this work was done under the direction of my immediate predecessor, Dr. William H. Devine, by a corps of forty to fifty school physicians, and a like number of nurses, regarding whose training, fitness, and pride in their work there can be no question.

The present Director finds himself intensely gratified to be in charge of such a well appointed, well intentioned staff.

It is also a matter of record that through the courtesy of the School Committee of Boston it was made possible in 1923 and 1924 for an official of the Boston Health Department (the present Director of School Hygiene of the Boston Public Schools), to conduct a diphtheria prevention campaign in the Boston Public Schools. In less than 40 days 55,551 children were Schick tested, and 25,620 were given their first injection of toxin-antitoxin; 25,094 their second, and 23,006 their third. This was in connection with the Boston Health Department's diphtheria prevention campaign where over 120,000 children were Schick tested, and nearly 50,000 immunized with toxin-antitoxin.

It might be well in passing to state that there were 736 fewer cases of diphtheria in this City in 1924 than in 1923, 1292 fewer cases in 1925 than in 1924, and approximately 2,000 fewer cases in 1925 than in 1923. There were 5 fewer deaths in 1924 than in 1923 from diphtheria; 79 fewer deaths in 1925 than in 1924, and 84 fewer deaths up to December 1, 1925, than in 1923.

It will then, at once become apparent that the work of the pre-school clinics of the Boston Health Department will bring about a very decided variation in these figures in the next decennial period, for example, there should be, and I have no doubt there will be, a great decrease in the number of cases of nasal obstruction, a decrease in the number of diseased tonsils, a decrease in the number of defective teeth, and in like manner a marked decrease in the number of cases of malnutrition and orthopedic defects. These, I submit, are reasonable expectations,—also, I may add, that supplementary to the diphtheria prevention work in 1923, the Boston Health Department has taken a definite stand with regard to the absolute desirability of toxin-antitoxin immunization work being conducted in the preschool age group, for as everyone acknowledges both the disease incidence and the mortality rates are enormous at this stage of the life of the child. When one realizes that there are at all times approximately 100,000 children of preschool age in this City, the necessity of the accomplishment of this work in this group will be readily appreciated; that this work is imperative and necessary is shown by a report that the Health Department has already nearly 1700 immunizations to their credit in the past year. The Department of School Hygiene of the Boston Public Schools stretches out its arms for the thousands of these protected children and pledges a united effort to maintain and conserve their health.

A very good question at this time—"What is being done in the schools now?" The question is fair and deserves recognition, and in order to conserve as much valuable time as possible, the writer herewith presents a summary of the activities of medical inspection in the public schools since his induction into the office of Director of School Hygiene.

The present Director took office May 11, 1925; an intensive study was made of the organization plan of the department then in practice, and in ten days, namely, May 21st, 1925, offered the following communication to the Boston School Committee through the Superintendent.

THE SCHOOL COMMITTEE OF THE CITY OF BOSTON
DEPARTMENT OF MEDICAL INSPECTION
15 BEACON STREET

May 21, 1925.

From: Director of Medical Inspection,
To: The Boston School Committee, and The Superintendent of the Boston Public Schools.
Subject: Plan of Reorganization of the Department of Medical Inspection.

It is, of course, incumbent upon me as the new Director of the Department of Medical Inspection, to devise a plan and formulate a program to the end that this department shall function at the highest efficiency compatible with its budget.

Such a plan and program are about to be offered you even at this very early opportunity for several excellent and compelling reasons, namely, that it would seem all together more desirable, primarily, that the work of the Department along these newer lines should begin

with the first day of school next September rather than be deferred to the second semester to avoid probable confusion in operation and more probable reduplication of work previously done in some other manner.

Secondarily, the long summer months will furnish adequate time for working out the details of such a program so that it will not be not only feasible but practical and quite fit to be put in operation on the opening day of school.

Lest it might appear to you that I am acting in this manner with unseemly haste, I may say, that the broad aspects of the program I am going to present have been slowly forming in my mind for several months in the event that I should be fortunate enough to appear before you as I do now, and upon the deepest thought the more firmly is the Director convinced that it is the best obtainable solution of the serious problem that now confronts this department.

That the problem exists, there can be no doubt—no question I am sure exists in the mind of anyone of this honorable board of the necessity of some radical revision of the manner in which the department has previously been conducted; no criticism is implied—none intended, but changes in the work are imperative.

The ideal organization probably will never be attained, but the practical one with some modifications is to be found in several places.

One does not have to look farther than the organization of the executive system that now obtains in the School Department of the City of Boston to find a ready answer to our own problem.

As I understand it, this organization consists of a Chief Executive (The Superintendent), who determines in a large measure the scope of the work and the policies of the Department under his able leadership. Closely associated with him in an advisory capacity is a body of capable Assistant Superintendent who not only serve as indicated above but are active field workers in districts of the city allotted to each and who function as advisers in special matters of departmental detail assigned to each.

The principals of schools are responsible to these assistant superintendents and the teachers likewise are responsible to these principals,—always the matter of responsibility is fixed—always the perfection of organization is striven for.

Furthermore, above and beyond all these is a supreme advisory and judicial body—the School Committee.

Now, then, it is the intention of the Director of the Department of Medical Inspection to secure at once an advisory Council composed of men preëminently fitted by training and experience to best advise in matters pertaining to the Department.

It has seemed to the Director that such a council should contain—an acknowledged expert in public health matters—an acknowledged expert in preventable diseases—an expert in internal medicine—an expert in the science of applied biology—a pedagogical expert in health education—an expert on the vast problem of Tuberculosis—an expert on the highly important matter of postural defects, and finally,—a gentleman whose intimate knowledge of educational matters and high professional attainments would serve to make him simply invaluable on such an advisory board.

The Director submits to you that this matter has already taken form; gentlemen of such calibre and distinction have been approached and I have the very great pleasure of telling you that they consider it a privilege to serve in such capacity. Of course, it is understood that this will be an active rather than a dormant body.

Carrying on the analogy, the chief of this department is the writer of this document and may be passed over as one who much prefers to be judged by his record of accomplishments rather than by mere words or promises.

This brings us then to the consideration of a board similar to your Assistant Superintendents—to the necessity of the appointment of a corps of assistants who will function as liaison officers between the active workers in the field and the departmental executive—men of such ability as will be able to organize and maintain each district functioning as a complete unit—men of such activity as to enable them to keep in close personal touch with all the physical problems the unit offers—men of such personal magnetism as to be able to secure the fullest measure of coöperation from those school physicians who must be responsible to them—men of such tact and diplomacy as will be able to settle promptly and efficiently the hundreds of moot questions that must and do arise in the course of routine school hygiene activities.

It may be said that what has been offered in the preceding paragraph regarding the qualifications of these men has to do with disease and defects only, but in view of the recent rapid advances in health education these men should possess both the ability and the knowledge to teach health problems and to provide scopes for the same to school physicians and school nurses, and what may seem more desirable to teachers themselves. In addition, they should have a working knowledge of accident prevention—of nutrition problems—(a complete knowledge of both the theory and practice of preventive medical work and the ability to organize for its efficient operation).

Furthermore, these district supervising officers should have a thorough understanding of the absolute desirability of linking up the home with the school environment and an appreciа-

tion of the most practical manner of bringing this about. It will be imperative for them to know the difference and make the distinction in the mere mass of statistics as they refer to defects found and the correction of the same.

In this connection, may the writer allude to what has recently come into being and is now functioning in cities and towns in close proximity to Boston—what is known as the Ten Year Tuberculosis Program. This plan, the conception of which is entirely the product of Massachusetts brains, now operating to the best of my knowledge in this State alone, has as its basis the most lofty purpose and the broadest scope—for the public health of the Commonwealth—of any similar program that has come to my attention. It seeks for nothing less than the abolition of Tuberculosis in the coming generation.

The means by which this end may be attained implies of necessity work among school children, and that this work be integrated as a vital part of school health work.

Any attempt to pursue to full effectiveness health conservation and health preservation would be doomed in my opinion to signal failure if some provision were not made for the admission and adoption of this most salutary and beneficent measure for the safeguarding of children's lives.

That an intimate knowledge of this subject on the part of the school physicians, is to say the least—much to be desired. Again, the Director is quite sure that you are all more or less familiar with the recent introduction and correlation of health education into the curricula of teachers' colleges. That some such provision will be made in the Boston schools in the not very distant future seems to the Director to be within the bounds of reasonable expectations. In such an event, the writer feels very confident that his advisory council and his district supervising officers will serve in a very useful capacity to those whose pedagogical duties shall require the determination of these courses.

To the end, that greater efficiency shall be secured, some revision of the duties of school physicians and consequently of school nurses is mandatory. That this revision will take the form of addition duties there can be little doubt and the working out of the multitude of detail necessarily involved will require careful consideration in the weeks that are to come.

Now in conclusion, Mr. Superintendent and Members of the Boston School Committee, may I be permitted to say that the Director of Medical Inspection is fully cognizant of your sympathy and well wishes in this matter, that he realizes your thorough appreciation of the part education must play in the health of the Nation. Your knowledge that the child committed to our care has the right to look to us not only for the correction of defects but for the conservation of health, to the end, that his vital capacity may be so maintained as to enable him to take from the schools all that the schools have to give and that your teaching staff may function to the point of maximum efficiency.

What is not so widely understood, however, is the fact that health is purchasable and that in this world one generally receives only that for which one pays.

For the rest, you must accept my assurance that the personnel as a whole will earn its salary and I expect, as usually happens, some members of it will earn much more.

Respectfully submitted,

(Signed) JOHN A. CECONI, M.D., *Director.*

SUBSEQUENT RECOMMENDATION

It will readily be seen that I have stressed the appointment of District Supervising Officers because this represents in a large measure the corner stone of this reorganization.

The qualifications to be desired and sought, for membership in this body, have been indicated in preceding paragraphs, and I have no doubt but that suitable material will be found among the present personnel.

The ways and means of finding this material remain to be devised and the details of the program remain to be worked out; but enough is known to make sure that such large demands will be made upon their professional skill, their personal magnetism, their tact and adaptability, as well as upon their time, as to require us to pay such men not less than $1800.00.

(Signed) JOHN A. CECONI, M.D., *Director.*

The Board of Superintendents approved this reorganization plan and the School Committee voted for its adoption. Arrangements were then made with the Civil Service Commission for a competitive examination by that Board for the appointment of six supervising school physicians. This examination was confined to the personnel of the department as it was the unanimous opinion that these positions should be considered as promotions within the department, and early in the Fall the examination was held and six supervising school physicians were appointed. The City was divided into six districts and each supervising school physician was given his respective district.

These supervising school physicians are directly responsible to the Director of School Hygiene for the work in the districts to which they are assigned and for the work of the employees under their immediate jurisdiction. They are required to conduct their work in harmony and to consult at regular intervals with the Director in all matters pertaining to the work and relative to the circumstances connected with

it. They are responsible for the technical and teaching phases of school physicians, explaining all instructions, preventing mistinterpretation of orders, correcting errors, giving personal attention, assistance, and encouragement to all under their jurisdiction, with the purpose of creating an esprit de corps by tactful and comprehensive dealings with all with whom they come in contact. These supervising school physicians confer with the principals of each school district as occasion demands; it is their function to establish and maintain hearty coöperation between the educational and health authorities; they explain to the principals of each district the essential features of school hygiene service, etc. These men possess by experience and training such knowledge of communicable diseases and epidemiology as will enable them to devise and maintain endemic indices in their districts, and they are capable of determining instantly the true situation as to frank cases, contacts, carriers, susceptibles, immunes, and releases; in other words, they possess a comprehensive and intimate knowledge of contagious diseases sufficient to compilate and maintain these endemic indices.

In addition, they are men who possess both the ability and the knowledge to teach health problems and to provide scopes for the same, not only to school physicians and nurses but also to teachers. I have no hesitancy in saying that the present corps of supervising school physicians are men who are not only interested but have shown their interest by having had experience in the most recent pedagogical advances in health education. So, after all, our chief aim is the most complete unification possible between medical and educational forces; this per se, is health education which is the slogan of preventive medicine.

So it will be seen, from the work already accomplished by the corps of school physicians, with the additional impetus given by the supervising school physicians, that the department of hygiene of the Boston public schools has a personnel which not only possesses the knowledge of public health, school hygiene, and health conservation, but has the ability, likewise, to impart this knowledge to others to the end that they, in turn, may be of greater assistance in the establishment of this correlation and in the integration of such constructive curricula in the Teachers College in the years that are to come.

The Director of School Hygiene next recommened to the School Committee the advisability of change of designation of "Medical Inspection of Schools," as it is a well known and acknowledged fact that medical inspection is a misnomer in the newly arranged program of the Boston Public Schools, so early in the Fall, by vote of the School Committee, the department of medical inspection was changed to the department of school hygiene. Shortly after this, the Director of School Hygiene, on the approval of the School Committee, appointed his Advisory Council of the following gentlemen: Drs. John B. Hawes, 2nd, Timothy J. Leary, Roger I. Lee, John A. Foley, Robert B. Osgood, Edwin H. Place, Henry M. Pollock, Milton B. Rosneau, Clair E. Turner, David D. Scannell and at all times the president of the Massachusetts Medical Society.

On the opening of school, in addition to the preliminary survey, an intensive inspection was made to determine the vaccination status of the school population. Every pupil, (130,000) was inspected, and the surprising results were that in the Boston Public Schools we had over 5,000 unvaccinated children. In passing it may be said that over 3,000 of this number have been successfully vaccinated since the making of this survey.

The Massachusetts State Department of Health Ten Year Tuberculosis Program alluded to above has taken form in the Boston Public Schools, and at this writing the weighing and measuring of all the children in the public schools in East Boston, Charlestown, the West and North Ends have been finished, and on January 11th the active clinical work of this campaign will begin.

In 1924 the school physicians found almost 3,000 cardiac cases in the public schools and the Director of School Hygiene feeling that this condition was vitally important, arranged a meeting with the most eminent cardiologists in this part of the Country for the purpose of obtaining their coöperation in determining the correct cardiac status in the public schools. The most that the Director of School Hygiene hoped for was that perhaps arrangements might be made whereby special cardiac clinics might be the city. Like all big spirited men, they showed the fullest measure of coöperation by gladly offering their services by coming into the schools, not only to examine the cardiac cases found by the school physicians and supervising school physicians but also to examine thousands of the the so-called potential cardiac cases. Arrangements are in the making for this survey, and it is expected that before February 1st this good work will be started. The cardiologists undertaking this work are as follows: Drs. Paul D. White, Burton E. Hamilton, George P. Denny, William D. Reed, Samuel Levine, Paul Emerson, and their assistants. To these men, one and all, not only the Director of School Hygiene, but his entire Department offer their thanks and deeply appreciate their assistance.

The Department of School Hygiene contemplates a toxin-antitoxin campaign for diphtheria prevention. This work will be conducted among the children in the kindergarten and first grades annually with the hope that eventually we will

have as nearly as possible a hundred per cent immunized school population against diphtheria.

Now, gentlemen, the opportunity is presented to me tonight of addressing a large group of medical men of the class known as general practitioners. I would be wholly insensible of the obligations under which their courteous coöperation has placed the Department of which I am chief were I to fail to express here and now my appreciation of these qualities which must form the basis on which all that makes for progress in medicine must rest. That the Department of school hygiene has always benefited greatly by the intelligence, good will, and helpfulness of the general practitioner, and has always appreciated them to the full, I am here to bear witness; and also to bear witness that this department will so conduct itself in the future by work and deed as to merit this confidence. I also wish to assure you that there is no room in the Department of School Hygiene for anything but the fullest accord between the family physician and the school physician.

And to the Chief Executive of the Boston Health Department, and the Chief Executive of the Sub-division, the Deputy Commissioner in charge of Child Hygiene, let me offer now publicly the assurance of my highest esteem, unlimited coöperation, and my best wishes for your fullest measure of success, which in the future means giving to the schools sound bodies which necessarily make for sound minds. If this is done, the old Latin dictum *"Mens Sana in Corpore Sano,"* will not be uttered in vain.

Discussion

Roger I. Lee, M.D.: Ladies and Gentlemen: This, I think you all agree, has been a very interesting and very amazing evening. I say it has been amazing because in this discussion of diseases and prevention, I haven't heard a bit of the moss that usually covers health work. There were a number of other things which were refreshingly absent from this evening's discussion. We didn't hear anything about bad smells or the bad smells that the Health Department creates in fumigation. We heard nothing of the old activities of a health department in putting up notices, fumigating, and getting the report of diseases, and then doing nothing about it. As a matter of fact we even missed the towel in the window in the school health inspection which has been so familiar to all of us. We have had presented this evening the new and aggressive method of health administration. Instead of being negative, this new health administration is entirely positive. Instead of dealing in negative terms of quarantine; instead of telling people what ought not to be done; it deals in positive terms and says what people can do. Instead of dealing with masses, the new health movement deals with the individual, because after all the individual is the source of disease, is the bearer of the disease and of the legacy of disease. It is the ideal of the healthy individual for which we are struggling.

The second impression that I got in this evening's discussion was the impression of coöperation. I think that possibly a good many of us are not aware of the extraordinary coöperation in the City of Boston between the official and unofficial agencies. Coöperation sounds awfully easy on paper; it is awfully easy to talk and write about coöperation, but actual coöperation, even in health work is extraordinarily difficult. But one of the things that impresses the visitor to Boston is the actual operation of this extraordinary coöperation between official health agencies and the unofficial private agencies here. I shall not be like some of the speakers here who passed out bouquets to all of the individuals concerned. I shall simply leave it to your imagination that it has demanded a good deal of sacrifice on the part of everyone concerned to bring about this coöperation, and this coöperation is a real and actual thing that is going on in the City of Boston.

Mr. Chairman; I would simply like to say in closing that those two aspects of health which have been so strongly brought out—the aggressive positive attitude and the attitude of coöperation—seem to me to spell the greatest possible promise for a real health program.

Geo. H. Bigelow, M.D.: *Ladies and Gentlemen:* Boston is certainly to be congratulated on the health program which has been so adequately outlined this evening. In Massachusetts we have what is called decentralized health authority; that means, that the responsibility for the health activity is vested in the cities and towns of the Commonwealth. The original State Board of Health which was created in the middle of the last century was created essentially to investigate and advise. Since that time specific responsibilities have been added to the Board, and later to the Department, but the success or failure of the State Department in the end is going to depend upon that original mandate that they should investigate and advise. That boils down to that much abused word that Doctor Lee has used—coöperation.

Doctor Ceconi has mentioned the ten year underweight program which the State Department is now conducting in the schools throughout the State. These clinics are to open in Boston early in January. I think it would be difficult to find a better example of coöperation between organizations than that which has been shown in preparing for this ten year tuberculosis program. We are in the second year of this program and the further we go the more important we find this work. Unless the preliminary work is done well, the clinics are useless. The

Medical Department in the schools and the Boston Health Department have given excellent examples of coöperation which can be used as an example in future clinics in the State.

There has been one point which has been stressed this evening which I think is very important—the extension of the medical supervision to the pre-school child. There is an increased burden of preventive medical activity being thrown on the school child, and it is certainly sound and economical as rapidly as possible to carry that over to the pre-school child who still has the leisure time, although leisure in these times is getting less prevalent. This preventive work must, however, be started in the schools. It is administratively easy and it is necessary for the education of the community, but as rapidly as possible that should be extended into the pre-school age. I don't know of any city in the Commonwealth where that is being more effectively extended in that age group. But in addition to what can be accomplished in the clinics, the correction of defects can most effectively be carried on in the private office and the home by the family physician. It is that coöperation from the family physician in the pre-school age group which in the future offers the most promise of results.

Mr. Horace Morison: *Ladies and Gentlemen*: After listening to the papers of the evening, I think you will be impressed by the value of decentralization in administering the work of the Health Department in a city like Boston. Not only is decentralization of the utmost importance to a city's child hygiene program, but district headquarters as provided in the North End and West End units establish valuable contacts between the workers of the official and unofficial agencies, between the local physicians and the City Health representatives, between the social workers and the public health nurses. I fully realize that without the coöperation and interest of the practicing physician no health centre program can succeed. I look forward to further decentralization on the part of the Health Department and unofficial agencies in other districts of the city, and to a more complete public health program as a result.

Dr. Ceconi has described the admirable program of school hygiene of the public schools of Boston. The liaison between the public schools and health units is vital to a complete health program in any district, and Dr. Ceconi appreciates the importance of this coöperation.

G. C. Shattuck, M.D.: On behalf of the Boston Health League I only wish to say at this time that its membership consists of many agencies which are doing health work in Boston, that the membership includes all the official agencies and that a prime object of the League has been the promotion of coöperation between member agencies. I want to congratulate all the speakers of the evening for the excellent progress which they are making in their several fields of work, to say that their papers have been interesting and instructive to me and to express the hope that we may have a similar meeting here every year at which the newer phases of health work in Boston shall be described.

Richard M. Smith, M.D.: There are many interesting features of the Health Department activities which might be discussed, but I shall try to confine my remarks to one phase of the work. For a good many years I have been interested in preventive work for children. It has been a source of considerable pride in Boston that health work for children has been developed here to such a high degree. Until recently this work has been done entirely by private organizations, except the examination of school children which was under the direction of the School Committee. The city has now taken over the work for infants and preschool children formerly carried on by The Baby Hygiene Association and more recently by the Community Health Association. A satisfactory program has been outlined and an efficient organization established—second to none in any city in this country. It is reasonable to believe that in its future development even better work will be done than in the past.

Dr. Wilinsky has spoken of the arrangement whereby the physicians for the conferences for well babies and children are provided by the three Medical Schools. This plan is advantageous both to the Health Department and to the Medical Schools. From the point of view of the Health Department it is possible by this means to have the medical work entirely removed from the field of politics. The appointments are made from men already associated with the pediatric departments and are made directly by the heads of these departments. This secures a high quality of medical service. This is important because the grade of work cannot rise higher than the professional standing and ability of the physicans in the conferences. The plan is advantageous to the medical school because it gives an opportunity for the use of the conferences for teaching purposes. We find that mothers are constantly asking questions of recent graduates in medicine, the answers to which require knowledge for which the student has had little or no training. Most of the instruction in the care of children has been given previously in hospital wards. These wards are filled with sick children. The physician must be trained also in the care of well children. The health conferences furnish a wonderful opportunity to see normal babies and to learn about the problems which these babies and children present. The final stage in development of work for well children is the taking over of

their supervision by the private practitioner. In order to be ready for this work instruction must be given by the medical schools along this line.

Doctor Calvin G. Page: There is one possible difficulty that the Board has in carrying on. I would like to speak to the Commissioner about the Lovering Street Clinic. The mothers of families in that area do not know that they belong to a "district," but do know that they are a part of their neighborhood. The people between Dover St. and Broadway won't carry their children across either street. They have a clinic which serves their needs well, and if for certain possible administrative reasons that clinic should be moved out of their neighborhood, the mothers will keep their children at home and the morbidity rate of the district will go up. It may be, that in this instance the neighborhood idea can be allowed to prevail over the district idea without any serious detriment to the administration of the work.

Dr. S. H. Rubin: One of the difficulties with which the school physician is confronted is the objection raised by parents to the removal of the child's clothing to permit of a more thorough physical examination. Parents should be made familiar with the need of a satisfactory physical examination by the school physician in order that the pupil may be properly understood from a physical angle as well as from a mental standpoint. To do this it becomes necessary to remove the child's clothing, and the removal of such clothing in the school examining room should not meet with parental objection any more than the removal of the child's clothing in the physician's office or in the hospital has met with objection. Parents objected to stripping of school children in New York City and the authorities permitted parents to have their children examined by the family physician whose certificate was accepted in lieu of an examination by the school physician. Approximately 50% of the children presented such certificates of examination the first year, about 30% the second year, and less than 10% the third year while in the fourth year very few if any such certificates were presented. Interest waned and was soon lost just as soon as the privilege of presenting the family physician's certificate in lieu of the school physician's examination was granted to parents. Comparing the number of defects discovered by the family doctor who examined the child undressed, with the number of defects found by the school physician, whose method of examination is restricted, it was found that the school physician recorded a larger per cent. of defects than the family doctor, so that it may be fairly said that the work of the school doctor is not at all inferior to that done by the family physician in so far as the physical examination of the school child is concerned.

Doctor Denny: I wish to express my appreciation and admiration of the work which the Health Department is doing in Boston. It is very desirable to get the preventive work done earlier in the child's life and to have as much of it done in the preschool age as possible. One unfortunate thing about a great deal of this work is that while we know it is worth doing, it is going to be very hard to measure our results. In infancy you have your infant mortality rates but very few children die in preschool age, and it is going to be hard to demonstrate results.

Doctor Ceconi: Referring to Doctor Rubin's remarks concerning the stripping of children for physical examinations, I would like to draw sharply to your attention that Boston is still a Puritanical City. I attempted at the beginning of this year in one section of the city to have the children stripped to the waist in all grades and at all ages. There were so many complaints by parents, lawyers, and politicians that I immediately abandoned the scheme. New York attempted this procedure some time ago without success. I realize that a complete physical examination is impossible unless the child is stripped but I do not assume the roll of the hero in Boston. I am likewise absolutely of the opinion that it is impossible to do physical examinations at the rate of four or five a minute as has been done formerly, and I am advocating qualitative rather than quantitative examinations and feel that it would be much better to examine thoroughly certain grades rather than the entire school population.

Doctor Wilinsky: I'm grateful for this opportunity to mention the fact that every piece of educational health literature emanating from the Child Hygiene Division of the Health Department always emphasizes the family physician as a factor and advises the family to bring the child to him for preventive medical service whenever possible. We feel that the modern Health Department has a certain specific function to perform; namely, the maintenance of community health. It is our obligation to develop a program that will maintain the very highest standard.

We have, indeed, been fortunate to obtain the coöperation of the medical schools and I desire to express the gratitude of the Department for the splendid coöperation shown by Doctor Blackfan, Doctor Smith, Doctor Emerson and Doctor Chadwell which has made possible the development of the plan whereby we furnish the very highest type of pediatric service at our 45 weekly child health conferences.

We shall be very pleased to find this type of work on the increase in the offices of the family practitioners of Boston, because then and only then can we feel assured that every child in the City is receiving this type of service.

DOCTOR MAHONEY: *Ladies and Gentlemen*: I want to stress how important the practising physician is in all of this work. The preschool age child is controlled by the family physician. He is the one that really has the power to explain and teach and direct the parents of these children and to have the families avail themselves of the opportunities which are now ready for them. Answering the question which you asked, Doctor, in relation to that clinic down in the South End, we are coöperating to the extent that I have requested Doctor Wilinsky to make arrangements to still continue to carry on this function in that particular district.

I wish to close simply by asking and implor-ing you practicing physicians to familiarize yourself so that you can do this work. We want you to do it, and I feel you will do it, because your families will be so advanced and enlightened themselves that they will be coming and asking questions that you will want to answer. This work will continue. You can see these two men; they are in the field of child hygiene and school work. No two men in the United States are better fitted to carry on that work, because they have demonstrated and proved it. If they have their health, they can go on, and in five years they will make bounds which will gratify the entire nation.

MEDICAL HISTORY

THE ROLE PLAYED BY PHYSICIANS IN THE DISCOVERY OF THE NEW WORLD

BY WILLIAM PEARCE COUES, M.D.

THE important part played by physicians in Columbus' great discovery is not generally realized.

"La Chronique Medicale" for December 1922 has an interesting article on this subject. It seems certain by documentary evidence that it was largely due to the intelligence and perspicacity of a Spanish provincial physician, that Columbus was able to go forth in search of the new world, instead of being confined in the awful captivity of the times, as a person of unsound mind. The account of this important incident in the life of Columbus is given as follows: Translated, this reads, "Another physician who played an important part in the life of Columbus was a simple village doctor, exercising his craft at Palos de Morguen in Andalusia. Columbus, tired out and ill had sought refuge in the convent of Santa-Maria de la Rabia. The Abbé in charge of the convent, thinking his guest was insane" (on account of his strange talk of new continents and expeditions), "summoned Dr. Garcia Fernandez to attend the sick man.

"This wise physician, in discoursing with the illustrious explorer on geography and astronomy, quickly found that he did not have to do with an insane person, but with a man of great genius. He told his opinion to the Abbé, and the knowledge of this humble but learned physician probably saved Columbus from a miserable fate."

"Garcia Fernandez started with Vincent Yaneth for the discovery of the Orinoco, and was the first to sound its waters, from whose shores there was furnished later so much of therapeutic value."

"It must be remembered that it was a Florentine physician, Toscanelli, who fortified Columbus in his conviction of the existence of a great unknown continent. Without Toscanelli's advice, Columbus would have steered in a direction which, instead of leading him to America, would have led his vessels away from it.

"Two physicians accompanied Columbus in his first voyage, both unhesitatingly abandoning country, family and ease, to take part in the expedition organized by the great navigator. One of these physicians was 'Maitre Alonzo,' on board the Santa Maria and the other 'Maitre Jean,' on board the Pinta. Alonzo returned to Spain with the admiral, and they were overtaken by a frightful storm. The physician accompanied Columbus to Seville and Barcelona, but it is not now possible to say whether the return was by sea or by land. Maitre Jean finished his days in a tragic manner, being horribly massacred by the Indians, the first martyr of our profession in the new world."

"The chief physician of the second expedition, comprising 1,500 men is better known to us. Dr. Diego Alvarez Chanca, of Seville was physician in ordinary to King Ferdinand and Queen Isabella. His determination to accompany Columbus on his voyage was met with approbation by their Majesties, who addressed the following letter to him:—

"The King and the Queen to Dr. Chanca.

"We have known that in your intention of serving Us, you wish to go to the Indies, and in doing this you will serve Us. You will be of help to those who go there by our orders, for our service: do this and go with our Admiral to the aforesaid Indies, he will talk to you of what will concern your sojourn there. . . . We send you a letter, so that you will be in receipt of the salary and emoluments that you usually receive from Us."

"Speaking of this physician in a letter to King Ferdinand, Columbus says, 'I have to inform Your Royal Highness of the constant la-

bors of Dr. Chanca, on account of the great numbers of the sick he attended, and his occupation about our stores. He has given proof of the greatest zeal in all that concerns his art. Your Royal Highness, having left me at liberty to fix the sum of the honorariums which I am to give him, ... I have established for him an annual credit of fifty thousand maravedi.' We are told that Dr. Chanca saved the life of Columbus, when he was attacked by a long continued fever, and that this physician wrote the first accounts of the new world, in the form of a report, addressed to the Municipal Council of Seville. He was the author of a number of books."

The article concludes, "That it is not probable that Dr. Chanca was the only physician who accompanied Columbus on his second voyage. It is likely that another surgeon made the voyage with the admiral, although history is mute concerning his name. His presence in this second expedition is incontestable, if we believe the manuscripts that we are entitled to believe. It is indeed probable that there were a number of physicians and surgeons, who passed over to America with an expedition numbering so many men."

More definite facts concerning the above question will probably never be known, but it must be of unfailing interest to physicians of the present, the world over, to realize what an important part those of their profession played in the discovery of the New World.

RABIES

Because of the increase in rabies in New Jersey and in Westchester County, active measures will be taken to bring about a rigid enforcement of the dog muzzling ordinance. This has in the past been one of the most difficult problems with which the Department has had to cope.

Dog owners do not appreciate the magnitude of this problem. Each owner, believing that his dog is harmless and does not bite, cannot understand why his dog must be muzzled. The records of the Department show the number of dog bites in 1925 was 7,030.

Thus in 1921 there were 3,049 dog bites as compared with 7,030 in 1925, an increase of more than 100 per cent.

The number of rabid dogs has also increased from 44 in 1920 to 76 in 1925.

The coöperation of everyone is urged in this campaign. Proper muzzling of dogs in public places will control this situation.—*Bulletin New York Department of Health.*

ARTIFICIAL IMMUNITY TO MEASLES

Although convalescent serum has been used for several years to produce a temporary immunization to measles, a better method seems available. These are the conclusions of Professor R. Debre and Dr. Joannon of the University of Paris Medical School, as reported to the Health Committee of the League of Nations and published in *Science*.

These investigations have shown that the blood serum of adults who had measles in childhood is still efficacious in modifying the disease in children so that it will take only a mild form, free of complications, and yet will confer a life long immunity. In the modified procedure of Debre and Joannon the serum is injected only between the sixth and tenth days after infection, when the virus has had time to incubate in the body.

When we consider that measles caused a million deaths in Europe between 1900 and 1910, and more than 100,000 in the United States death registration area from 1901 to 1920, and, with the possible exception of smallpox is the most contagious disease known, we can better appreciate any efforts made at its control.

EXHIBITION OF MEDICAL EDUCATION AT CINCINNATI

Under the auspices of the Public Health Federation of Cincinnati and with the coöperation of the Cincinnati Academy of Medicine, the College of Medicine of the University of Cincinnati has prepared a free public exhibition of its activities, to be held during the third week in February. The exhibition is being held at the College of Medicine and is open afternoons and evenings from February 16 to 22, inclusive. It consists of static exhibitions from the the various departments, of daily sessions of short educational talks on medical topics and of moving-picture shows illustrating the various phases through which a student of medicine must pass before he can accumulate enough knowledge to be fitted for the practice of his profession. The text of the exhibition is "The Physician in the Making"; the slogan: "What Medical Science Means to You."

It is hoped that the public may thus be convinced of the indissoluble relationship of science and medicine; of the fact that brief courses of so-called instruction and a smattering of fallacious theory are a totally inadequate basis for an understanding of the ills that beset mankind, and that the sincerity of the medical profession may be made manifest by inviting "the man in the street" to come into a medical school and see for himself what the sciences have done and must do in order to cope with disease. The proposed exhibition is meeting with the wholehearted support of the lay press and health associations and it is hoped if it turns out successfully that medical schools in other cities will repeat this experiment.—*Science.*

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY
RICHARD C. CABOT, M.D., AND HUGH CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 12111

MEDICAL DEPARTMENT

A Jewish widow of fifty entered the hospital February 6, 1926. Her husband died twenty years before of pulmonary tuberculosis. She had had four children, three living and well, one dead, cause not given. The family history was otherwise unimportant.

Past History. Measles in childhood. No other acute infections. For sixteen years she had been a patient in the Out-Patient Department of the Massachusetts General Hospital. In 1910 she was treated here for retroversion, lacerated cervix and endocervicitis. From 1912 to 1915 she was treated for constipation and sacroiliac strain. In 1919 she had a pelvic operation of some sort at another hospital. On June 3, 1921, she complained of epigastric pain and was found to have a marked bradycardia. Dr. P. D. White made a diagnosis of atrioventricular rhythm, sinus arrhythmia, cardiac enlargement.

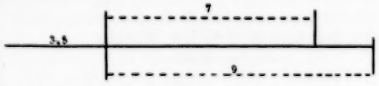
Present Illness. For many years she had had slight attacks of nausea, gas, and dull pain in the epigastrium. Ten months before entry her dull epigastric pain became nearly continuous, and added thereto in the same region were sharp colic-like exacerbations coming directly after meals. This sharp pain radiated sometimes to the small of the back and the right shoulder. The epigastrium had been tender. Sometimes a Seidlitz powder gave relief.

For five weeks before entry an entirely new and distinct symptom had been present. This was an intense substernal burning (called heartburn) with a point of maximum intensity about two inches above the ensiform, which like the epigastric pain was brought on by eating. Along with the burning there had occasionally been regurgitation of a mouthful of food, even milk, without any nausea. The food tasted disagreeably but not sour. She spat it out. During such regurgitation the burning ascended in the midline to the interclavicular notch and sometimes there was a choking sensation. There had been no dysphagia, no sensation of difficulty in swallowing whatever.

Another symptom present was moderate palpitation on effort for two years; no dyspnea or edema. During the past ten months she had felt weak and had lost about twenty-four pounds.

In September she was in the Peter Bent Brigham Hospital for three weeks. While there an X-ray examination showed two small diverticula in the midportion of the esophagus. The esophagus was otherwise normal. The stomach was low in position, showed hyperperistalsis, was of normal tone, and was not tender. There were no filling defects or incisurae seen. The outline was regular. The duodenum was median in position, regular in outline, and there were no tender points. The ileum was normal. The cecum was normal. The appendix was not seen. The colon was filled, normal in position, with no obstruction. Hypermotility was present, the head of the barium column having reached the sigmoid at six hours. Impression: No pathology found. Esophageal diverticula.

Examination. A thin, pale, somewhat emaciated woman of fifty not suffering acutely and able to lie flat. Pupils and knee-jerks normal. Teeth false. Throat negative. Thyroid and lymph nodes not enlarged. *Heart.* Apex felt in fifth space. Rate 40, irregular. Long systolic murmur at apex. Blood pressure 135/65.

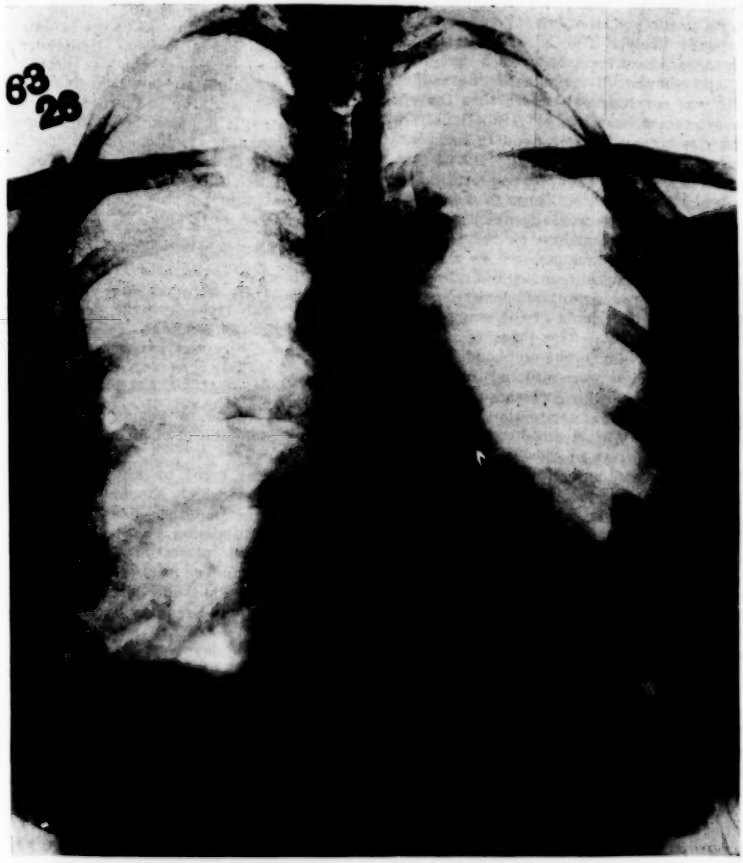


Lungs negative. *Abdomen.* Midline lower abdominal operative scar. Suggestion of a small mass on deep palpation in epigastrium. Liver edge just felt, firm and smooth. *Pelvic examination.* Cystocele, rectocele, lacerated cervix. Fundus in normal position. Vaults clear. *Extremities* not remarkable.

Laboratory. Urine 1.010-1.016, clear, acid, no sugar or albumin, occasional hyaline and granular casts. *Blood.* Red cells 4,600,000, hemoglobin 70 per cent., leucocytes 6,800. Moderate achromia and anisocytosis. Non-protein nitrogen 30 mgm. Stool not remarkable. Guaiac negative. Wassermann negative.

X-ray (see illustration): The middle third of the esophagus had a variation of contour of the lumen, and two well defined rounded extraluminal shadows were visible. This projection from the contour changed slightly in size and retained the barium after the remaining portion of the esophagus had emptied. The outline of the esophagus in this area was smooth with the exception of the rounded appearance of these projections. There was slight delay of the thick barium at this point, and slight dilatation. No definite evidence of organic disease of the stomach or duodenum. The

six hour meal had reached the cecum. "Findings are those of a lesion in the middle third of the esophagus, the appearance of which suggests two diverticula."



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Course. She was kept in the ward for ten days on a bland diet with some relief to all symptoms, and discharged to be followed in the Out-Patient Department.

Discussion

BY JAMES H. MEANS, M.D.

This case is presented because it brings up a very instructive point in the diagnosis of esophageal lesions and throws some light on the nature of heartburn. Until the X-ray was taken it had not been suspected that any esophageal

lesion was present. Attention was focused on the heart and stomach. The heart block in the absence of syphilis or rheumatic story was regarded as arteriosclerotic in nature. It was not thought that any real cardiac insufficiency was present. The character of the epigastric pain suggested a gastric lesion, and the questionable epigastric mass and the loss of weight made cancer seem likely. The X-ray however was frankly negative as regards stomach and duodenum, and showed diverticula of the esophagus. It was concluded therefore that the epigastric symptoms were probably functional and secondary either on the one hand to the heart, or on the other to the esophagus.

We will now ask Dr. Camp to comment on the X-ray, and then Dr. C. M. Jones to discuss the case in relation to the work he has been doing with Dr. Wyman Richardson on the reference of pain from the esophagus.

Dr. Camp: The roentgenologic findings in this case are interesting inasmuch as they disclosed two small diverticula of the esophagus at about the same point. The presence of more than one diverticulum in the esophagus is rather uncommon. These were situated in the middle third of the esophagus, which suggests that they probably originated as traction diverticula.

Dr. Jones: As Dr. Means has pointed out, this case is of interest in view of the findings that Dr. Richardson and I have been making in studying the effects of various stimuli applied to the esophagus. We have found that heartburn can be readily produced in many persons by distension of the lower esophagus with a balloon, or by the introduction of water, acid, alkali or gastric contents. During the course of the experiments it became evident that a sensation of burning was produced most frequently by stimulation in the lower third or lower half of the esophagus. Stimulation in the upper half of the esophagus usually resulted in a sensation of distension or of choking, and in almost every case all sensations were referred to the midline. A few cases referred their sensations to the back or the precordium. In the case under discussion the lesion probably causing the sensation of heartburn was located at about the junction of these two zones, and it is not surprising, therefore, that there was a mixture of sensations—both of burning and of choking. In this case the symptoms were truly referred, and analagous to referred pain. They were probably caused by the local lesion. In most cases of heartburn, however, the mechanism may well be, and in all probability is due to a reflex disturbance from some other level of the gastro-intestinal tract.

LATER NOTE

March 2, two weeks after her discharge from the house, the patient was seen by Dr. Jones in the Out-Patient Department. She was feeling much better. She had no epigastric pain. The heartburn was practically gone. She had some regurgitation about five minutes after eating. She was gaining weight and strength.

Note by Dr. Jones: The disappearance of the heartburn in this case is due I think to complete rest and reassurance as to the benign character of the esophageal lesions. Heartburn usually is a functional reflex, which is increased by fatigue or emotional stress. Inasmuch as it is probably in no way due to increased acidity or local chemistry, it is not difficult to understand the relief from this symptom in the case under discussion. If at a later date the diverticula enlarge and are the seat of an inflammatory process it is quite possible that the heartburn may return.

DIAGNOSIS

Heart block.
Esophageal diverticula.

CASE 12112

MEDICAL DEPARTMENT

A married Canadian woman forty-one years old entered complaining of an ulcer on the right foot.

History. For eight or nine years she had had diabetes for which she had insulin treatment for three months, discontinued seven months before admission. Two years before admission she had ulcerations on her ankles, which healed under local treatment. Four months before admission she had bronchitis, weakness, unsteadiness on her feet and loss of weight. Three weeks ago she had abdominal distension. Five days ago a blister appeared on her right great toe, caused by the shoe. This became gradually worse. Two days before admission she called a physician.

Important physical findings. Examination showed a greatly emaciated woman looking dehydrated, old, and sick. The bladder was distended to above the umbilicus. There was a residual of thirty-five ounces. The right pupil was irregular. Both pupils reacted very sluggishly to light. The knee-jerks were absent, Romberg positive. The legs showed some numbness and loss of sensation. There was a gangrenous ulcer involving the dorsum of the right foot. Good dorsalis pedis pulsation. Feet warm.

Until operation the temperature was 96.8° to 99.1°, the pulse 70 to 98, the respiration normal. *Urine:* On admission 1.7 per cent. sugar, diacetic acid +, a slight trace of albumin. Sediment: much pus in clumps, red blood corpuscles, no casts. During the rest of the hospital stay the sugar in the twenty-four hour

amount was never over 0.7 per cent. For twenty-eight days before her death she was sugar free and diacetic acid free. The urine constantly showed albumin, red blood corpuscles and leucocytes. The blood sugar varied from 292 to 172 mgm.; twelve days before death it was 241 mgm. Non-protein nitrogen 26 mgm. Blood: Leucocytes 12,400 to 25,000, hemoglobin 40 per cent., reds 1,440,000; no smear was examined. Spinal fluid: 5 cells, Wassermann negative. It was interpreted by Dr. Clymer as ruling out tabes, and the symptoms were explained as diabetic polyneuritis.

Twenty-four days after admission the right great toe was amputated under local anesthesia. Twenty-four days later, after surgical transfusion of 400 c.c. of blood, the right leg was amputated a few inches below the tibial tubercle under spinal procain. Four days later another transfusion was done, 500 c.c. of blood. Two days afterwards a midthigh amputation because of gangrene of the stump was done under gas-oxygen. Next day the temperature was 101.2°. Jaundice rapidly developed. A blood culture was negative. Two days after the last operation the patient died.

Diabetic treatment. Admission diet, carbohydrate 50, protein 40, fat 50, rapidly increased to carbohydrate 60, protein 40, fat 80, which gave her 28 calories per kilogram. Insulin varied from 9 to 65 units daily.

Discussion

by dwight l. sisco, m.d.

I think it is indicated at once that this patient was rather a mild diabetic and not given to following a careful régime. There is nothing in the history to tell us the cause of the ulcers on her ankles two years before admission. They may have been due to circulatory changes, to lues or to some local skin infection. It is obvious that she had been failing for eight or nine years due to diabetes, but the more recent bronchitis and unsteadiness on her feet are open to conjecture. There is no history of abdominal pain, constipation, nausea or vomiting to indicate acidosis. Diabetes, arteriosclerosis, secondary infection and possibly lues or primary anemia seem to be the most logical possibilities.

A blister caused by the rubbing of a shoe is one of the most common causes of gangrene in a diabetic. In spite of the unfortunate termination this patient was fortunate in having a doctor who recognized her plight and sent her to the hospital at once. Frequently such patients arrive at the hospital too late to obtain results.

The distension of the bladder with 35 ounces residual urine might be present in a diabetic with severe acidosis, but when in conjunction with the sensory changes in the legs, the irregular, sluggishly reacting pupils, the absent knee jerks and a positive Romberg test, it is more likely to be associated with tabes dorsalis. Furthermore the data obtained when she entered the hospital do not indicate that she was in severe acidosis. Diabetic polyneuritis is very rare and seems to me to be very unlikely in this case in spite of the fact that the Wassermann and spinal fluid findings are negative and there is no evidence indicating lead, alcohol, arsenic or other causes of neuritis.

The fact that good dorsalis pedis pulsation was present is important, and undoubtedly influenced largely the decision to try to save her toe. If there had been no pulsation and the foot was cold instead of warm it is highly probable that immediate amputation would have been advised. Arteriosclerosis and endarteritis are very common in long-standing diabetes. It is not unusual to find the aorta in such a patient resembling that of a person seventy-five or eighty years of age.

Her temperature indicates that she did not have a general infection when she came to the hospital. The admission urinary findings corroborate our opinion that she was a mild diabetic and that acidosis played almost no part in the picture. The presence of clumps of pus cells, red blood cells, but no casts is more in keeping with trophic or degenerative changes in the bladder than with nephritis. The distended bladder is important in this respect also. The normal non-protein nitrogen value also supports this view. Only 1.7 per cent. of sugar was present in the urine on admission and thereafter the twenty-four hour amount never contained more than 0.7 per cent. She was sugar free and diacetic acid free for twenty-four days before her death. There was never enough diacetic acid present to be considered a factor. It was apparently deemed unnecessary to determine the CO_2 combining power. The blood sugar varied from 292 mgm. to 172 mgm.—a constant hyperglycemia, but never a serious one.

The white blood count varied from 12,400 to 25,000, undoubtedly associated with the infection of her foot and the terminal generalized infection. We are told that her hemoglobin was 40 per cent. and the red count 1,440,000, but no examination of the stained smear was made. This is an important error, because we have no other way of telling whether she had a primary anemia. The sensory changes in her legs and other evidence of posterior cord changes may be evidence of such disease. We have no history of loss of blood except the presence of red cells in the urine, and it is doubtful whether enough blood was lost in this way to cause such a marked anemia. We must admit that the blood studies in this case were inadequate.

Obviously an effort was made to save this patient's toe by adopting conservative measures for twenty-four days. The toe was then disarticulated; but the infection continued to spread and the foot was amputated. Six days later however the spreading infection made midthigh amputation necessary. It is very difficult to decide when and where to amputate, but experience seems to indicate that early radical procedures get the best results. Her temperature continued to rise, jaundice developed and death resulted, undoubtedly due to septicemia in spite of the negative blood culture. I think a blood culture should be taken before every amputation, not only for the satisfaction and protection of the surgeon, but also because it satisfies the family.

I believe that the preoperative and postoperative care of a diabetic patient is as important as the operation itself. Radical procedure and over-treatment should be avoided. It is not necessary for the patient to be sugar free, and in emergency cases no time should be lost in bringing this about. In fact a little sugar in the urine increases our confidence that the glycogen stores are not depleted, although this may not necessarily be the case. Acidosis is less desirable than the presence of sugar, but even this may be disregarded in emergency, provided a proper régime is instituted. In brief, in urgent emergencies the surgical decision should be made without considering the diabetic condition, because with skillful handling this can be controlled. If time is available, however, it is wise to get the patient acid free and the sugar under control before operating. This can be done by properly gauging the insulin dosage with the amount of sugar and acid present in single specimens of urine. More insulin is required in the presence of infection. For one or two days before operation the diet should contain 80-100 grams of carbohydrate per day, which is sufficient to bring about adequate glycogen reserve. From 80 to 90 grams of fat and one gram of protein per kilogram of body weight are adequate. Too much fluid should not be administered. Two or three liters a day are probably sufficient, but this much should be administered, using all the usual routes if necessary. Radical increases in carbohydrates, insulin and fluids are not necessary immediately preceding operation.

The post-operative diabetic care may be controlled entirely by the urine findings. A specimen should be obtained every three hours, a self-retaining catheter being used if necessary. Insulin should be administered every three hours in accordance with the amount of sugar present. This need not be actually quantitated, because with the Benedict test increasing amounts of sugar cause the solution to turn green, yellow, orange, red or brown. Adequate fluid intake is essential, and until the patient is able to take liquids by mouth they should be be given by rectum or subcutaneously. It is rarely necessary to resort to the intravenous route. From two to three liters a day are usually necessary. During the first one or two days following operation from 40 to 60 grams of carbohydrate is usually sufficient. This may be given in the form of oatmeal gruel, orange juice or rectal injections of 5 or 10 per cent. glucose solution. Such constant and detailed attention is necessary that I believe every diabetic operative case should have a special nurse for the first forty-eight hours following operation.

This case impresses me as one of mild diabetes, adequately controlled, with death from septicemia directly traceable to an ulcer of the foot with resulting gangrene necessitating amputation. I think Dr. Richardson will tell us that the liver and spleen are large and soft. Arteriosclerosis is undoubtedly present, and I believe the kidneys will show evidence of arteriosclerotic degeneration. I am very skeptical of the diagnosis of diabetic polyneuritis and believe that our most logical diagnosis is tabes dorsalis, in spite of the negative clinical findings. I hope Dr. Richardson will have some data concerning the posterior columns of the cord and the bone marrow.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Diabetes mellitus.
Diabetic gangrene of right foot.
Amputation of great toe.
Amputation of right lower leg.
Amputation of right thigh.

DR. DWIGHT L. SISCO'S DIAGNOSIS

Diabetes mellitus.
Septicemia.
Arteriosclerosis.
Tabes dorsalis.

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesion*

(Diabetes mellitus.)

2. *Secondary or terminal lesions*

Thigh amputation.
Arteriosclerosis, moderate.
Arteriosclerotic degeneration of the kidneys.
Icterus.
Central degeneration of the liver.
Edema of the lungs.
Hyperplastic spleen, slight.

3. *Historical landmarks*

Chronic pleuritis.
Fibromyomas of the uterus.

DR. RICHARDSON: I am sorry that I cannot tell you about the cord. Permission was not granted.

She was emaciated. The head was not examined. Icterus was present. The skin was yellow, and the conjunctivae showed a slight tinge. In the sacral region was decubitus.

The subcutaneous tissues were wet. The peritoneal cavity contained 200 c.c. of thin fluid. The peritoneum was negative.

There were a few old pleural adhesions on each side, and the trachea and bronchi contained much pale brownish frothy fluid, indicative of edema of the lungs. The bronchial glands were negative. We found no tuberculosis, which is not uncommon in diabetes.

DR. SISCO: Six per cent. of 887 fatal cases is Dr. Joslin's experience.

DR. RICHARDSON: The lungs showed edema. The heart weighed 223 grams, which for her was normal, and the valves and cavities were negative. Beginning from the arch of the aorta, in the descending thoracic and abdominal portions there was considerable diffuse arteriosclerosis. The great branches also showed fibrous sclerosis.

The liver weighed 1815 grams. That for her was a little large. It showed a fairly smooth surface, a little irregular, with some bile-staining and in some places slight nutmeg markings. Microscopically the liver showed some central degeneration.

The pancreas was rather small and microscopically showed no lesions, no definite changes in the islands of Langerhans.

The spleen was slightly enlarged and a little soft.

The kidneys showed rather well marked arteriosclerotic degeneration. This arteriosclerosis was best marked in the smaller vessels.

The uterus was rather small but presented five small pedunculated fibromyomata the largest of which was 3 cm. in greatest dimension.

DR. SISCO: You got no evidence that it really was septicemia?

DR. RICHARDSON: No culture was taken here, I do not know why. Did she have a temperature?

DR. SISCO: She had a temperature of 101.2° on the last day.

MISS PAINTER: She ran a temperature right along.

DR. SISCO: She undoubtedly died of clinical septicemia.

DR. RICHARDSON: She had decubitus in the sacral region.

DR. SISCO: The two outstanding things are the failure to explain the anemia, and also the large bladder. Clinically I am inclined more toward tabes dorsalis than diabetic polyneuritis because I believe the latter to be extremely rare. We have no data concerning the anemia, not even a blood smear. So whether it was polyneuritis with primary anemia I do not know.

A PHYSICIAN: Would this blood count be compatible with a primary anemia?

DR. SISCO: I think it is compatible with a primary anemia. On one date bile was found in the stools, but this probably followed the jaundice with septicemia.

DR. RICHARDSON: The picture so far as it goes here is in harmony with sepsis.

CASE 12113

SURGICAL DEPARTMENT

A married German woman forty-four years old came to the Out-Patient Department complaining of a rash on the chest lasting with varying intensity for five years. She had had four miscarriages, had lost two children, and had three living and well. Examination was negative except for a ventral hernia and prepatellar bursitis. At the Surgical Department operations for both were advised. She did not however come to the wards.

She was not seen again until six years later. Then she returned to the Out-Patient Department. The prepatellar swelling was red, hard, not hot or tender. It had discharged "a lot of thick stuff". A Wassermann was strongly positive. A syphilologist gave the opinion that the condition was probably a prepatellar gumma.

September 25 she entered the wards. She said the swelling on the knee began fourteen (?) years ago as a pea-sized mass, gradually increasing to its present size. About a year ago it began to discharge, at first watery material, then pus or seropus.

Examination showed obesity. There was a scar of a repair of a ventral hernia which showed weakness but no true bulge. On the right knee was a mass the size of an orange, red and moderately tender. A small amount of seropus was expressed. There was no fluctuation. The edges were definitely hard or indurated. The rest of the examination, including the pupils, was normal. The knee-jerks were not done.

The chart was not remarkable. The urine was normal. The blood was not examined.

A syphilis consultant reported, "Unquestionably a prepatellar bursitis, very probably luetic. Arsenic and mercury should be given previous to operation."

September 28 the patient was discharged to the Out-Patient Department.

From October 5 to May 10 she was seen at the South Medical Department once or twice a week. The treatment included mercury ointment, neodiarsenol, gray oil, sodium, potassium iodide, iron and quinine pills. March 9 considerable slough had separated, leaving a larger

opening. There was a very foul odor. Quinine iodobismuthate was now started, and given two or three times a week. There was gradual improvement until April 5. Two days before she had struck the knee on a stone. Nearly all the slough had separated. The inner half of the cavity showed a deep sinus and considerable necrotic tissue. After this she had pain in the knee. The bismuth was continued, and April 20 potassium iodide was ordered. May 3 X-ray showed marked irregularity in the outline of the soft tissue in the region of the prepatellar bursa. The patella itself was normal in outline and density. The knee joint appeared normal. No evidence of disease of the bone. One Alpine lamp treatment was given. During the next week the pain in the knee was quite unbearable. May 4 a Wassermann was strongly positive. May 10 a biopsy was done.

May 18 the patient entered the wards for the second time. She reported that she was able to walk with little pain, but that the knee ached considerably at night. The discharge had lately tended to be foul. She had dressed the wound at home at least twice a day.

On examination the abdominal muscles seemed tense and thickened, suggesting masses in each flank. The right knee showed a punched out necrotic area about 4 cm. in diameter lying over the prepatellar bursa, discharging a putrefactive substance and showing an inflamed slightly tender areola 2 cm. wide. The knee motions were well carried out, though slightly restricted.

The chart before and after operation was normal. The urine was not remarkable. The blood is not recorded.

May 21 operation was done, and June 2 a second operation. She made a good convalescence. June 16 she was walking with some difficulty, but doing well. That day she was discharged.

In the Out-Patient Department December 14 a third Wassermann was strongly positive.

LATER NOTES

February 16, three years later, examination showed a remarkably good post-operative result, with free motion of the knee.

Discussion

BY WILLIAM P. COUES, M.D.

I should judge that this discharge had a more or less honey-like, thick consistency, but was probably not frank pus.

Before we start with the examination there are one or two things I should like to speak of. She had four miscarriages. We should like to know about how far along those miscarriages were in pregnancies. She had lost two children. We might be helped by knowing the age of those children when they died, whether they died in very early infancy or had grown up to be older children.

Miss Painter: They died in infancy.

Dr. Coues: Taking these things together, even if we had not the serological test given here as positive, the blood Wassermann, that certainly would be pretty suspicious I think.

A rash for five years off and on might mean almost anything. Certainly lasting like that it would not suggest to us any specific rash; perhaps a transient eczema or urticaria, but probably having nothing to do, I should say, with the constitutional disease which was present.

This was the scar of an operation which was not done here so far as we know?

Miss Painter: It was certainly not done here.

Dr. Coues: It was advised here, but apparently she had gone off somewhere and had it done.

The infected knee being so sore I presume they did not want to test that for knee-jerks and did not do the other.

The consultant reported what we know commonly as "housemaid's knee". I suppose this consultation was had on account of the history and the look of the lesion on her knee. He thought there was a great preponderance of chance that this was syphilis, and being so he recommended intensive specific treatment; it did not seem logical to operate under those conditions, but to give the thing a chance, and see if it was not what was supposed, and would be cured by vigorous intensive treatment.

I presume she may have had inunctions, but we do not really know about that.

They evidently were thinking of a bony enlargement below that bursar, which whether luetic or not was a large inflammatory mass directly over the bony structures, and they were thinking of the possibility of a bone involvement, perhaps by extension or perhaps something from the bone that had come up through. I think we should all think that there very probably might have been some bony change evidenced here, with the examination as described.

Alpine lamp treatment was given I suppose with the idea of improving circulation. Evidently that one treatment did not do any good.

I cannot give an opinion here because I have seen this case in the Surgical Out-Patient Department and know something about it. But from reading so far with an unbiassed mind, knowing nothing of the later findings—this at least I think I can say—I think I should have been struck by that prolonged treatment.

Dr. Sisco: With such a lesion and such prolonged treatment without much improvement, might one have been a bit more radical about it sooner? I should think it would nearly prove that it was not specific.

DR. COUES: That is exactly the point. Here we have a case which has all the earmarks of an ulcerative luetic lesion, a gumma, with a syphilologist who tells us there was a positive Wassermann. Then we have the history, and even before any pathological examination we have to go on our experience and what we know of such cases and their reaction. Now all those things seem to spell that, and what impresses me, and I think we should all be struck by, is the extraordinary resistance to intensive treatment well applied over a period of months, with no help or practically none. Quinine iodobismuth was used I think one of the first times here in this case. I am told that it gives very good results in the late lesions of syphilis, and apparently there was slight improvement.

The next thing that strikes me is of very great interest. After she was struck by that stone on the bursa she got worse, immediately began to have more trouble. That spells certainly an increase in the process, whatever it was,—an inflammatory process, a gumma, or something else.

These events seem to me to be the most important things. She had no business to drag along so slowly with that good treatment. She had iodin probably in large doses. We know that one of the things that iodide of potassium or of sodium will do is to dissolve gummas like snow before the sun. It may not cure syphilis, but symptomatically at least that gumma is cured. This did not do it. There must have been some definite reason for that. If we had not had this syphilologist's opinion I venture to say there is not one of us who would not make this probable diagnosis on this appearance and this history.

She was discharged first with probable gumma and bursitis and sent to the Out-Patient Department for treatment, and everybody would think she would have been cured; but instead of that she was worse. Evidently there was considerable increase in discharge, probably from breaking down, more slough, and more breaking down of inflammatory tissue. A punched-out necrotic area, circular, bitten out, in the middle of a thickened reddened zone is always most suspicious of a luetic inflammatory process.

Before we have the house record and the pathological record I should like very much if somebody would suggest—because this is an extremely interesting case—if this means anything out of the ordinary, and any points in this history as I have read it that might spell anything definite to him. There are two or three little points that do make a key to the situation. What makes it seem a little bit different from an ordinary gummatous lesion, if it is a gummatous lesion, is as we said at the beginning the chronicity of it and the failure to respond to treatment, which is certainly most remarkable as gummatous infiltrations go.

I thought too as I read this history that the important point here in the light of this story is that sentence in the upper paragraph, "the edges were definitely hard and indurated". I suppose this is a unique case. I have not found any just like it in the literature. I do not see how any of us could say definitely what this thing was.

When this patient was sent down to us the striking point was this ulceration in the reddened tissue over the knee, with a distinctly hard, crater-like induration on each side of the wall of the ulcer.

REPORT ON BIOPSY MAY 10

Microscopic examination of a small fragment from the right knee shows a tumor infiltrating the subcutaneous tissue, composed of round cells with large hyperchromatic nuclei. There is no definite alveolar arrangement. In places there are narrow bands of hyaline intercellular substance. Mitotic figures are numerous. No pigment can be found. There are focal areas of small round cell infiltration. The histological appearances are not characteristic enough to make a diagnosis of the type of new growth. It is considerably modified by inflammation and necrosis. It is a rapidly growing neoplasm.

PRE-OPERATIVE DIAGNOSIS MAY 21

Malignant tumor, skin and knee.

FIRST OPERATION

Gas-ether. The ulcerated growth over the patella was excised with an inch and a half of skin margin. This left a large defect, to close which no attempt was made at the time of operation.

PATHOLOGICAL REPORT

An area of skin containing an ulcerated growth the size of a silver half dollar. On section it shows a grayish white surface without definite outlines.

Microscopic examination shows the tumor largely made up of degenerate connective tissue in which there are scattered clusters of undifferentiated cells without any definite arrangement. These cells show numerous mitotic figures and contain no pigment. I am unable to classify the growth. It is probably sarcoma, and possibly melanotic.

SECOND OPERATION, JUNE 2

Gas-ether. Thiersch grafts were removed from the left thigh and implanted on the granulating area in the right knee.

FURTHER DISCUSSION

Just a word about the case as a whole. Here we have an instance of a rather uncommon manifestation of syphilis in gumma of the prepatella bursa. It is wise to be on the lookout for indolent painless swelling over the knee. It was first described by Dr. Verneuil in 1868. Then it was written about in America to a certain extent.

Then the second point of interest, a malignant degeneration of a gumma, and the point that we brought out in discussing the history of the case, which I think all will agree now shows up very well: the reason it did not do well was because malignant degeneration was beginning and was manifest for some months, until we got sufficient clinical signs, a biopsy was done, and this curious tumor formation was found. Then the remarkable operative result with a very good action of the knee, and no recurrence of the malignant growth after three years.

As to the question of the trauma, I think unquestionably if there was a malignant process beginning that trauma started it up and made it worse. We know that frontal gummata seem to appear in the Moslems who throw themselves on the marble floor of the mosques and the forehead is in close contact with the floor. That is an instance of syphilis and trauma. In the same way probably this blow traumatized the syphilitic tissue, and unquestionably started the nidus of malignant cells growing.

Dr. Richardson, would you give us any idea about that tumor? Clinically it seemed much more such as we see in cancer of the rectum or cervix than like sarcoma. It seems to me a very interesting pathological point.

DR. RICHARDSON: Yes. I have never heard of anything like that. There were no glands of any kind?

DR. COUES: Not that I know of.

MISS PAINTER: The record has the glands as normal.

DR. RICHARDSON: It is a very unusual picture all around. If it is malignant we expect some glands.

A SURGEON: Were there any other events? How do you know that this lesion was syphilis?

DR. COUES: I think we simply have to stand on what we know, the miscarriages, the death of two children in infancy, the positive Wassermann reaction and the look of the knee. That we think spells that condition. We may be wrong. Is it right, Dr. Richardson, that in specimens from presumably gummatous tissue, in the absence of tubercle bacilli it is sometimes impossible to make a positive diagnosis?

DR. RICHARDSON: Yes.

DR. COUES: So that with all the pathologist has done to study the conditions we cannot always say, and in the last instance it falls back on what we see.

A SURGEON: What do you make of these tense muscles?

DR. COUES: I don't know what to make of them.

DR. SISCO: Is there any note about those in the end result?

DR. COUES: I think not. I have noticed sometimes where there is a very lax abdomen the lower abdominal muscles seem more prominent in a way, and it may mean that, but I do not know.

DR. SISCO: Was the Wassermann test negative?

DR. COUES: I don't think we have any record of that.

MISS PAINTER: There is no record of one at the second admission. There were two strongly positive in the Out-Patient Department.

A SURGEON: Is it not remarkable that there were no more metastases?

DR. COUES: I think it is most remarkable. We cannot tell just what the malignancy was but she seems to be in perfect health now.

DIAGNOSIS

Luetic bursitis, right knee.

Malignant disease (sarcoma?) of skin of right knee.

THE BOSTON

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SELECTION OF MEDICAL STUDENTS

THE Yale University School of Medicine has recently adopted the policy of inquiring in detail concerning the financial status of students when they apply for admission to the School and refusing admission unless the School can personally assist them financially, through scholarship or loan fund, or unless they have made such adjustments that will liberate practically all of their time to intensive school work during the academic year.

This ruling has, of course, excited comment, and has led to the thinly veiled accusation that the School is undemocratic and a rich man's school. Any such announcement readily lends itself to misinterpretation and undoubtedly has been misinterpreted. Obviously the ruling has been made only after mature deliberation and careful consideration by the authorities of the best interests of both school and students.

There can be no thought in our minds that any injustice is intended or is liable to result to any needy student on account of this policy. Unquestionably the School has deferred its adoption until it saw itself in a position to render aid to any needy and worthy student who might apply for admission.

Such a ruling, however, must tend towards limitation in numbers, and despite all efforts that may be made it seems probable that occasionally a meritorious applicant may be rejected because of this necessity for doing outside remunerative work. No student, be he rich or poor, devotes all his waking hours to his academic problems and we have known many poor but determined men who have employed in remunerative labor the hours that their fellows spent in idleness or social pursuits, who have graduated from their schools and have attained positions of respect and eminence in their profession.

With the present need of trained practitioners of medicine and the tendency in medical education to point rather towards scientific pursuits than towards the practical application of the art of healing, it seems unfortunate that so many of our best schools should find it necessary to limit their numbers and direct their attention towards a class of students who are to select the laboratory rather than the office for their field of future activities. Such policies, also, cannot fail to give aid and comfort to the proponents of low grade schools of medicine whose avowed reason for existence is that they provide an opportunity for medical education to the poor boy. It would, perhaps, be better for our schools to recognize their practical responsibilty to a present, as well as their theoretical responsibilty to a future generation.

SUPPORT FROM A NEW QUARTER

THE attitude taken by an intelligent layman in the matter of registration of chiropractors is illustrated by the reply of Rev. Dr. S. Parks Cadman, published in the *Boston Herald*, to a question asking what he would do if he had been a successful practising chiropractor for nearly ten years and if the American Medical Society, authorized by the state, said he could not continue to practice without complying with certain laws which practically destroyed his science. The question, to us, seems slightly ambiguous, not knowing whether the American Medical Association or the Massachusetts Medical Society is referred to, and knowing of no such authority conferred on either organization by the state.

Dr. Cadman's reply, however, admits of no misinterpretation and seems worthy of publication. With complete comprehension of the problem he replies:

"I should conform with the laws in question. The general principle underlying the training of candidates for the learned professions is that they shall pursue certain recognized studies.

These studies are not confined to the teachings of any one school of law or medicine or divinity. They include as far as possible the

entire realm of these branches of learning.

Nor will the state license a candidate to practice law, medicine, or dentistry until it is acquainted through prescribed sources with the extent of his knowledge of his calling.

Once his knowledge is reported satisfactory, the state does not interfere with the practitioner's opinions. He may be a chiropractor still and a better one because of his broader training.

The inquirer has to face a condition and not a theory. So long as the state must protect the life of the citizen it will insist that those who profess, as he does, to heal diseases and delay death shall meet all its requirements."

It is heartening to those of us who are bending our efforts to the maintenance of proper standards of medical practice to receive support from this quarter.

BRINGING BACK THE COUNTRY DOCTOR

A NUMBER of searching investigations have been made with rather voluminous reports resulting, concerning the scarcity of rural practitioners and, more ominous still, the lack of signs of proper replacement for those still in the field. The fact has not been difficult to prove. Pusey, in a canvass of all state medical society secretaries, received replies from 30 stating that rural communities were not being adequately served, and Nicoll, questioning state health officials received 31 replies to the same effect. A number of writers have shown the average age of country practitioners to be over 52, and advancing rapidly, as against a much lower age in the city, and statistics compiled show the population for physicians in the country to be greater than a few years ago. It has been shown, further, that the average distance between doctors in the rural districts is greater than formerly.

There are many reasons for this scarcity. In the first place a general cityward drift of all elements of the population has rendered the country a less prosperous place to live in. Good roads, the automobile and the telephone have made the town doctors more available, and in good weather patients pass the local practitioner's door on their way to the town doctor's office. With the raising of our standards of medical education many schools have been eliminated and only those of relatively high quality left; the doctor's education is longer and more expensive, and he looks for a greater return on his investment than can be gained in the country. Modern educational methods, moreover, while of a high scientific calibre do not give the all round training necessary for him who must rely on his own resources in all sorts of emergencies.

Many remedies have been suggested, ranging from the establishment of hospital centers, community laboratories and health stations, to the subsidizing of physicians and radical changes in our educational standards. Occasionally the need has been met; more often no satisfactory solution for a local problem has been found.

The town of Altura, Minnesota, has solved its problem in a unique manner, according to the *New York Times*. Altura is a village of about 250 inhabitants and 200 farmer families within a few miles. The nearest doctor was formerly 10 miles away. The villagers formed a Health Association, and after seeking expert advice advertised in a medical journal, making four offers to any satisfactory man.

The first guaranteed him the patronage of 125 families at $24 a year; the second made a like guarantee, but the doctor was to practice on a fee basis, and only when his receipts fell below $3,000 was the association to be assessed for the remainder; the third was a promise to secure as many families at $24 a year as possible, who should have first claim, but the doctor was free for outside practice; and the fourth was without guarantee, the association acting only as advisers. The doctor was also to run the drug store.

Fifteen physicians applied for the position, and the one chosen elected to serve under the third plan. The doctor is also required to serve in a health supervising capacity, giving two thorough examinations a year to all subscribers, and watching over sanitary conditions about their homes and about the village.

Such a physican, if he is of the right type, can become a power for good in this community, a leader, rather than what he might appear to be, a paid servant of the community. After all, the future health service of our rural districts is largely in their own hands, and through their own intelligence and pre-sightedness they can take care of their needs.

CHLORINE TREATMENT OF CONTAMINATED OYSTERS

THE oyster as an article of food has been relished since antiquity, but of late years a shadow has been cast over the innocent amusement that its consumption gave in the days of the walrus and the carpenter. The oyster, in short, has often been suspected and frequently proved to be a typhoid carrier.

Within recent years the chlorine treatment of contaminated oysters has been devised, and more lately has been subjected to searching analysis to determine if it is really as effective as originally assumed.

The chlorine treatment of oysters actually consists in the chlorination of water in which the live oysters are placed, and in this sterilizing medium they are expected to cleanse themselves. Krumwiede, Park et al. have recently published the results of their investigations in the *American Journal of Public Health*, and

they quote the following from Wells as indicating the mechanism on which the procedures are based:

"Briefly stated, this method of purification consists of nothing more than assuring conditions of cleanliness under which the oyster can by its natural function, remove any pollution received from the water. Ordinarily the oyster is very active in filtering out and digesting fine particles which are drifting in the water. If kept in clean surroundings, the oyster is just as active in returning these substances into the water. Under ordinary conditions an oyster passes 50 gallons of water a day through his gills, and a particle of food deposited on those gills will pass on to the mouth and be eliminated from the oyster within 5 hours. If conditions are maintained such that pollutions are removed, and new ones are not permitted to enter the oyster, it is possible to cleanse a polluted oyster within a remarkably short period. Twenty-four hours has been found sufficient under ordinary conditions of practice. With slightly polluted oysters less time is required than for grossly polluted oysters. The latter, which it would not be proposed to treat, might require a longer period than 24 hours."

Krumwiede and Park and their associates, acting on the theory already supplied, undertook a series of experiments which consisted in contaminating oysters in water containing typhoid feces, and by exact bacteriological methods determining the degree of contamination of shells, liquor and bodies after varying periods of chlorination.

The conclusions they were forced to reach were that the chlorination treatment will result in a marked diminution in the number of B. typhosus, but even six successive treatments may not rid the oyster of the contaminating pathogens. "The process," they conclude, "cannot be recommended therefore in any sense as a reliable means of 'sterilizing' contaminated oysters and thus rendering them fit for consumption. The results indicate that safe oysters can only be produced by growing them in waters uncontaminated by human feces."

AN UNAVOIDABLE DELAY

THE reprint of Dr. S. B. Woodward's address before the Committee of the Legislature together with an explanatory letter of the Joint Committee on Legislation was mailed as soon as possible after it became known that the Committee on Public Health had decided to submit a majority report in favor of Dr. Woodward's recommendation. It was impossible to reach every section of the State as early as was desired.

If the House passes the bill, there will be opportunity for physicians to do follow-up work with the Senators.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

CHUTE, ARTHUR L., M.D. Harvard Medical School 1895; F.A.C.S.; Associate Professor of Genito-Urinary Diseases, Tufts College Medical School; Genito-Urinary Surgeon, St. Elizabeth's Hospital; Member, Societé International d'Urologie, American Association of Genito-Urinary Surgeons, Clinical Society of Genito-Urinary Surgeons, The American Urological Association, The Boston Surgical Society, The New England Surgical Society, The Obstetrical Society and the Boston Orthopedic Society. His subject is "A Study of Some Cases of Hypernephroma," page 471.

MAHONEY, FRANCIS X., M.D. Harvard Medical School 1905; Commissioner of Health for the City of Boston. His subject is "Public Health Administration in Boston," page 479.

WILINSKY, CHARLES F., M.D. Baltimore University School of Medicine 1904; Deputy Commissioner, Boston Health Department; Director of Child Hygiene. His subject is "Municipal Preventive Medicine," page 481.

CECONI, JOHN A., M. D. Tufts College Medical School 1904; Director of Division of School Hygiene for the City of Boston. His subject is "Municipal Preventive Medicine as Applied to the School Child," page 485.

COUES, WILLIAM PEARCE, M.D. Harvard 1894. Surgeon to Out Patients, Mass. General Hospital, Assistant Surgeon, Boston Dispensary, Fellow, American College of Surgeons. Instructor in Surgery, Tufts College Medical School. His subject is "The Role Played by Physicians in the Discovery of the New World," page 494.

The Massachusetts Medical Society

PAPERS FOR THE ANNUAL MEETING

PLEASE send any papers you wish to read at the Annual Meeting of the Massachusetts Medical Society, which will be held in the Kimball Hotel, Springfield, on June 8 and 9, 1926, to one of the officers of the appropriate SECTION. Do it now, before the official program is made up. The program, under the terms of the By-Laws, must be mailed to every Fellow a month before the meeting. The officers of the SECTIONS are:

SECTION OF MEDICINE: *Chairman*, W. H. Robey, Boston. *Secretary*, Maurice Fremont-Smith, Boston.

SECTION OF SURGERY: *Chairman*, J. M. Birnie, Springfield. *Secretary*, H. P. Stevens, Boston.

SECTION OF TUBERCULOSIS: *Chairman*, A. S. MacKnight, Attleborough. *Secretary*, Randall Clifford, Boston.

SECTION OF PEDIATRICS: *Chairman*, R. M.

Smith, Boston. *Secretary*, J. Herbert Young, Boston.

SECTION OF OBSTETRICS AND GYNECOLOGY: *Chairman*, C. E. Mongan, Somerville. *Secretary*, F. C. Irving, Boston.

SECTION OF RADIOLOGY AND PHYSIOTHERAPY: *Chairman*, L. B. Morrison, Boston. *Secretary*, F. B. Granger, Boston.

The street and number addresses will be found in the Directory of 1926.

WALTER L. BURRAGE, *Secretary*.

A LATE NOTICE

REPORT of the death of Dr. Edward Dana Hubbard of 96 Middle Street, Gloucester, November 24, 1923, has just reached this office.

Dr. Hubbard was a member of the Massachusetts Medical Society. His name appears even in the last directory.

Note: The Secretary of the Massachusetts Medical Society calls attention to the fact that Secretaries of the District Societies sometimes neglect to check the names of the Fellows published in the directory. It is very much to be regretted that the death of one of our Fellows is not recorded promptly.

The Secretary of the Massachusetts Medical Society carefully scrutinizes death notices as published in the daily papers and endeavors to have every death given recognition. It must be recognized that illness or other vicissitudes of life may interrupt the work of a careful official.

Every Secretary of the District Societies has a responsibility with respect to the accuracy of the records. All persons connected with the general work of the Society welcome co-operation.

MISCELLANY

QUACKS AND QUACKERY

IT is reported in *Clinical Medicine* that the *Chicago Tribune* has employed a hearty, husky young man who, after having been examined by experienced and reputable physicians and found to be in perfect health, has been interviewing quacks all of whom thus far have found some physical defect which they would undertake to cure for a substantial fee.

Perhaps the news feature of a report of the same sort of investigation might lead some prominent newspaper in the East to adopt this plan, if brought to the attention of the editors by a reputable medical society.

ANNUAL REGISTRATION OF PHYSICIANS

A BILL, supported by the Board of Regents, the State Health Department and every medical society in the state except that of King's County has been introduced in the New York Legislature providing for the annual registration with the State Education Department of all physicians. The introducers of the bill feel that through such publicity the elimination of all "quack" doctors would eventually be achieved.

The measure would also provide a grievance committee in the medical profession which would be empowered to check up on delinquents and correct abuses, according to the *New York Times*.

INFORMATION ABOUT THE USE OF GAS

THE National Safety Council, 108 East Ohio St., Chicago, has prepared a pamphlet entitled "Safe Use of Gas in the Home" which contains simple practical suggestions on the avoidance of accidents and fire hazards in connection with the use of this household commodity which will be sent to any person for the price of fifteen cents each.

It would be well for every householder who has gas fixtures to have a copy for the instruction of members of the family. Deaths due to leaking gas fixtures or carelessness in the use of them are very common. More instruction and warning will prevent many deaths.

EVERY DOCTOR A HEALTH OFFICER IN HIS OWN FIELD

(Abstract of an address before the Harvard Medical School by George E. Vincent, President of the Rockefeller Foundation, February 11, 1926.)

ANY fundamental social change is preceded by a period of phrase-making and suggestion. There must be what Woodrow Wilson called a stage of "much talk". "The sovereignty of the people" contains dynamite which helped to destroy absolutism. The warning against "entangling alliances" still bolsters a policy of isolation. "America for the Americans" has superseded "asylum of the oppressed" as a principle which controls immigration policy. "The open door" voices at best a hope of getting a foot in the narrow space by which the portal is ajar. "Equality of opportunity" expresses a determination to keep the rules of life's game reasonably sportsmanlike. In a few nations new rallying cries are preparing publics for a return to one man rule. Many phrases and slogans are evanescent and come to nothing. But if a shibboleth has validity it slowly gets itself translated into action.

The emphasis upon the preventive attitude toward disease is a case in point. The traditional ratio of ounce to pound was ready-made for the purpose. Traces of the idea can be found all through the history of medicine, but in its more definite form it is a modern conception. Dr. Henry I. Bowditch in 1874 in a pa-

per on "Preventive Medicine and the Physician of the Future" explicitly stated the principles of prevention. He said then almost everything that has since been so tiresomely reiterated, and, on the whole, said it better.

The preventive theory has given rise to many phrases of assertion, assumption and prediction which ought not to be uncritically accepted. Here are some of them:

If all knowledge now available were applied, soicety could be transformed and the span of human life greatly prolonged.

With the progress of research still larger possibilities of health and happiness will be revealed.

As health is a "purchasable" thing it is only a question of getting communities to provide sufficient funds.

Prevention is to take the place of cure in the whole range of human afflictions.

The health of the public will increasingly be safeguarded and fostered by specially trained, full-time, officers of health with staffs of technical assistants.

The private physician of the future will gradually turn from cure to prevention, becoming a health counsellor who will make periodic examinations and give advice about personal hygiene.

Medical Schools, responding to changed demands, will coöperate with Schools of Public Health in training officers and technical experts.

Medical Schools will prepare physicans to discharge the new function of prevention by emphasizing health examinations and the principles of personal hygiene.

Information about the scientific facts and and practical procedures which underlie public health and personal hygiene will be incorporated in the school and college system and in adult education.

As has been intimated, these statements need to be subjected to discriminating analysis; terms should be rather carefully defined. Thus the idea of prevention has different meanings in application to widely varying problems. In the field of sanitation prevention is obviously precise and convincing, e.g., with respect to typhoid fever. In the case of certain other communicable diseases such as small-pox and diphtheria prevention is fairly clean-cut, but when maladies like tuberculosis, venereal diseases, influenza are concerned prevention grows more uncertain and difficult. So in the field of hygiene there is an enormous difference between prevention as applied to maternity and infancy on the one hand and to heart disease or cancer on the other.

There is, too, danger of overestimating the practical value of the scientific knowledge available at a given time for the solution of a problem in sanitation or epidemiology. It is not a question of quantity of information only; its comprehensiveness is of first importance. Unless it is systematically developed there are sure to be gaps and misinterpretations. For example, it used to be assumed that the scientific basis for the control of hookworm disease was practically complete. All that remained was to put this information into practice on a large scale. Actual experience in the field, however, showed the necessity for further investigation of soil pollution, influence of different soils and of climate, viability of parasites, distribution of infestation by age, sex and occupation and the comparative efficacy and costs of different drugs. As a consequence the methods used to combat hookworm disease have recently been radically changed. The supposedly sufficient knowledge of ten years ago has turned out to be not nearly enough or not all of the right kind.

Obstacles and limitations in public health and hygiene cannot wisely be ignored. The problems of prevention may be arranged approximately in a progressive series of increasing difficulty. Sometimes the difficulty is due to lack of scientific knowledge, e.g., measles, influenza, cancer or to intrinsic complexities, e.g., tuberculosis, heart disease, mental disturbance. The need for further research and demonstration calls for no elaboration. The order of successful preventive attack at present seems to be in general: (1) sanitation of the environment including water-borne and certain animal and insect-carried diseases; (2) control of contact-borne diseases; (3) hygiene (a) maternal, (b) infant, (c) school, (d) industrial, (e) mental, (f) personal hygiene of maturity.

It is also in something like this order that health is purchasable on the best terms. Investment in public health conforms to the "law of diminishing returns". The substitution, for example, of a good water supply for a bad will quickly bring down the general death-rate, while large expenditures on tuberculosis will only slowly make any significant reduction. One can understand why an eminent hygienist recently told a group of young doctors of public health from foreign nations that he envied those who were returning to work in countries with a high death-rate. They would get large returns on the right kind of initial expenditures. The insistence on the purchasable character of public health has at best one obvious danger. It may give the impression that only ample funds are needed, when in reality the methods employed and the personnel in charge are far more important considerations.

The work of prevention is subject also to another principle, namely the multiplicity of causation. In many forms of health work it is impossible to isolate satisfactorily any one factor. Thus a lower infant mortality rate may be due to a variety of causes which are simul-

taneously operative, e.g., improved sanitation, paving and street cleaning, better housing, higher standard of living, purer water and milk supplies, new playgrounds and parks, maternity hospitals, health centers with baby clinics, visiting nurses, instruction of mothers, etc. It is impossible to assign an accurate rating to each of these and other possible influences. It is human for the agencies engaged in conscious efforts to improve health to claim full and sometimes excessive credit for the lowering of death and sickness rates. It is also true that multiplicity of causation applies to the private practice of medicine. Who shall say which of many factors contributes chiefly to the recovery of a patient?

But after all qualifications and deductions have been made, conscious, purposeful prevention of disease and of premature death remains a significant possibility which has already been strikingly demonstrated and is probably capable of still greater development in the future. Yet nothing is to be gained by exaggeration of what has or may be done. On the contrary, sweeping assertions that curative medicine will give way entirely to preventive measures and that the private practitioner will gradually yield his place to the salaried officer of health are both unfounded and harmful.

At this point, to avoid confusion, it will be well to suggest a definition of terms. It is unfortunate to use public health and preventive medicine as wholly interchangeable terms. Public health may usefully be limited to preventive activities which are concerned with the community or nation as a whole, while preventive medicine may be thought of as dealing chiefly with the individual. To assert that every doctor ought to be a health officer in his own field is only a way of saying that he should not only coöperate loyally with the public health authorities, but should seek to guard his patient so far as possible against the attacks of disease and help them to attain vigorous bodily and mental well-being, that is, he should think less of cure and more of prevention as his chief aim.

Only up to a certain point can there be clear differentiation between full-time officers of public health and practitioners of preventive medicine. In the majority of instances the same individuals perform both functions. With the establishment of health centers, for example, notably pediatric clinics, practitioners are increasingly called into service as part-time public health officials. But it seems important not to confuse the two types of service simply because they are performed at different times by the same person.

It becomes more and more clear that the future of both public health and preventive medicine will depend chiefly upon the attitude not of the relatively small percentage of physicians specialized as full-time officers of health, but of the medical profession as a whole, and also upon the results of continued research which it is hoped will reveal means of prevention wh now at best only alleviation seems possible. This change of emphasis from cure to prevention is being brought about not only by research, but by enlightened leadership in the medical profession, by changes in the content, philosophy and spirit of medical education, and by the demands of a public which is learning more about the possibilities of health conservation.

Passing allusion may be made to the problem of recruiting from the body of medical students and from practicing physicians, candidates for specialized full-time posts in public health administration. There is no denying that the best men are now precisely crowding into this new profession. There are obvious reasons for this, both positive and negative. The attractions of successful careers in clinical medicine, surgery, the specialties, research and teaching need not be amplified. The often patronizing, if not contemptuous attitude of successful clinicians toward public health work, the inadequate pay, the political uncertainties, the apparently routine character of duties, the type of health officer too often now in service are some of the things which give pause to young and promising men.

But the outlook is far from hopeless. A career in public health appeals only to certain types of men and women. These are attracted by the idea of dealing with general social forces. To such persons the care of individual patients or possibly the idea of collecting an income from them is not alluring. Opportunities for administrative work, the possibilities of studying diseases statistically in large groups, and for improving the underlying conditions of community life, in short for public service rather than private employment are to them more compelling. This address contains no evangelistic exhortation to medical students to engage in self-sacrificing service. Fortunately, conditions are steadily improving and more doctors of the right kind are being enlisted in public health work.

The "permeation of the medical curriculum with the preventive idea" is a fascinating phrase of Sir George Newman of the British Ministry of Health, but it is hard to get the ideal translated into fact. A professor of hygiene in a medical school unless he enjoys an unusual degree of personal prestige occupies at best a tolerated and tangential position. He has little real influence upon the mental and emotional values which the students put upon public health and preventive medicine. It is the leading professors of the major departments who give direction, substance, tone and energy to the ambitions and attitudes of the undergraduates. Too generally these shining exponents of al-

leviation and cure are indifferent, patronizing or sceptical about prevention. They, quite unconsciously for the most part, damage the cause seriously. Most of them probably do not realize that prevention has any genuine relation to what they are doing. Some even say it has none.

If only the recruiting of health officers were at stake perhaps the effort radically to change the philosophy of the medical course would hardly be justified. But, as a matter of fact, nothing less than the cause of prevention itself is involved in the kind of doctors the medical schools are sending out. Each of them ought to be an officer of health in his own field. This means, as we have said, that he ought not only to think of himself as vitally related to the public health organization of his community, but he ought also to have constantly in mind the implications for prevention in his daily relations with his patients.

There are signs of promise for the reorganization of medical education. A National Committee is studying the subject. Several medical faculties are making experiments. Perhaps the most radical plan for introducing the idea of prevention is that which is under way in the Medical Schools of Harvard and Yale Universities. A central committee is coöperating with the teacher of each course in introducing as an organic part of the subject matter its preventive aspects. Departments vary, of course, in the degree to which this can be done without artificiality, or straining after uniformity. Medicine lends itself easily to the idea. So does obstetries which is largely preventive. General surgery, it must be owned, is rather baffling, although orthopedic and industrial surgery are clearly susceptible of preventive presentation. The experiment will be watched with keen interst. Few of the older men are likely to be completely swept away by enthusiasm, but perhaps the younger will not prove wholly impervious.

In addition to the recognized procedures in dealing with communicable diseases, maternity, infant and child health, etc., the present practical problems of prevention from the standpoint of the practitioner, concern so-called periodic health examinations and the advice to be given, especially to adults, with respect to work, diet, exercise, sleep, and mental life. It is significant that the American Medical Association has recently issued a pamphlet on these subjects for the guidance of its members. Apparently such information is needed for it seems to be agreed not only that the average practitioner is ill-equipped for this service but that medical students even yet get little or no systematic training in the first function, and that aside from a few very general and largely common sense precepts there is no authoritative consensus about the second. This does not, to any considerable extent, hold true of pediatries, and the dietary treatment of a few specific diseases. Experiments are being undertaken in several medical schools in organizing instruction in health examinations. Medical students are examining each other and it is proposed that they shall serve as assistants in making examinations of other groups of presumably well persons. The question of advice on personal hygiene, however, demands authoritative organization of present knowledge and vigorously prosecuted search for more facts. For it is probably true that doctors as a group are as ill-prepared to give advice in personal hygiene as they are to conduct the periodical health examinations.

As to the auspices under which such examinations can best be conducted, there is a difference of opinion. On the one hand it is asserted that the work should be done in health centers and clinics by doctors who have nothing to do with any treatment that may be indicated, so that all ground for suspicion that the examination is being used to increase curative practice will be removed. On the other hand, it is urged that the examiner, especially if he has known an individual for a considerable period, should be best qualified to give advice. The relative merits of these plans need not be discussed here. Both call for the proper training of the physician.

It is only fair to admit at this point that people who think they are well are generally quite as indifferent to good counsel as doctors are unprepared to give it. There are cynics who go so far as to say that the idea of prevention is itself a pusillanimous doctrine fit only for the senile. From this point of view, taking chances, gambling with health, gives a zest to life. One can understand this attitude, in a measure at least. If health is thought of as mere absence of disease, it becomes a negative thing. If prevention is to appeal to vigorous people it must be presented as the means of insuring a positive and enlarged capacity to make life richer and more of a real adventure in fields that are worth while. At any rate, it will do no harm to expose the public to a knowledge of hygiene and then let the selective processes of intelligence take their course.

At the end of this presentation of the possibilities of prevention there is no call for a peroration of either indignant reproach or of revivalistic appeal. The strictly scientific attitude—which scientists rarely transfer from their special fields to social phenomena—assumes causation in the facts of individual and group behavior. There is a regular sequence in human affairs. Problems of maladjustment arise, persist, will not be ignored. At least a few acute, imaginative minds recognize the situation and propose solutions. If these have value and are to influence the group, they must

be put into vivid phrases which get themselves repeated until at last, something is actually done.

In the promotion of prevention, the phrase-making has been apt and effective. Almost any man in the street, when properly stimulated, will say that prevention is better than cure. Much has already been accomplished in translating this phrase into action. So with a newer cry: "Every Doctor a Health Officer in his own Field". If it gets itself repeated often enough by enough medical students and physicians, it may, little by little, help to create the doctor whom Bowditch thus described a half century ago; he "will be the prophet of the future, and will direct men how to govern their own bodies in order to get the full amount of work and of joy that is possible out of each body that appears in life."

RECENT DEATH

TRACY—Dr. Roger Sherman Tracy of Ballardvale died at his home in that town, March 6, 1926, at the age of 84. He was a graduate of the College of Physicians and Surgeons, Columbia University, in 1868. He had not been in practice for several years.

CORRESPONDENCE

A CASE OF LUETIC BURSITIS OF THE ELBOW

Mr. Editor:

Some years ago I reported in this Journal a case of luetic bursitis of the elbow, or luetic bursopathy of Verneuil (Churchman), giving a review of the literature on this subject.

Luetic bursitis is uncommon, and is apt to be unrecognized.

In connection with this case it is of interest briefly to record data concerning another, with an apology at the same time for lack of definite dates, follow-up record, and history.

The patient was seen some five years ago in the Surgical Out-Patient, Massachusetts General Hospital, being referred from the Neurological Department by Dr. Hugo Mella. The case was that of a man somewhat passed middle age, with definite tabes. For some time there had been a painless swelling over the posterior surface of the left elbow. This was somewhat doughy in character, with signs of fluid, under comparatively little tension, and the movements of the elbow being little interfered with. Palpation over this region showed numerous loose, small bodies, which could be pushed at will to all parts of the swelling. There was a history of a possible foreign body in the arm, from a knife wound some time before. X-ray examination showed a shadow, which looked exactly like that of a small knife blade, in the centre of the bursal area.

At operation this was found to be a thin, flat lamella of bone, exactly the size and shape of a small blade; the particular point from which it came was not determined. A considerable amount of grumous viscid fluid was let out, with many small, hard masses (fibrin?) not of bony hardness. The process did not seem to connect directly with the elbow joint, and as I recall the X-ray picture, there was no definite process shown involving the bones of the joint (tabetic process).

Unfortunately the case was lost sight of soon after this and the subsequent history not known.

Very truly yours,

Wm. Pearce Coues.

March 8, 1926.

CONNECTICUT DEPARTMENT OF HEALTH

Morbidity Report for the Week Ending March 6, 1926

Diphtheria	53	Conjunctivitis inf.	1
Last week	56	Encephalitis epid.	1
Diphtheria bacilli carriers	21	German measles	17
		Influenza	20
Typhoid fever	4	Mumps	6
Last week	0	Pneumonia, lobar	57
Scarlet fever	95	Tuberculosis, pulmonary	30
Last week	86		
Whooping cough	88	Tuberculosis, other forms	1
Last week	77		
Measles	1037	Chancroid	2
Last week	535	Gonorrhea	43
Bronchopneumonia	40	Syphilis	33
Chickenpox	72		

NEWS ITEMS

ACCEPTS NEW POSITION—Dr. George S. Bliss, formerly on the staff of the Waverley School for Feebleminded, has resigned as superintendent of the Waimano Home, Hawaii, to accept a position as superintendent of the Pacific Colony, a new institution for the feebleminded at Spadra, Southern California.

THE PHYSICIANS' HOME has opened New England headquarters at 120 Boylston Street, Boston. Messrs. Paul H. Hines and Victor B. Klefbeck will have charge of this office, both of whom are well known in newspaper and publicity work.

Mr. Paul H. Hines has been active in the newspaper profession since 1913 with the exception of two years, when he was in military service on the Mexican border and in France. He has served as reporter and news editor on the *Boston Post*, *Boston Herald* and the *Lincoln Daily Star*, Lincoln, Neb. He served for two years in the Massachusetts Legislature and has directed many important publicity campaigns. He holds a brilliant record in the army and was awarded the Distinguished Service Cross for valor in action.

Mr. Victor B. Klefbeck has had a successful career in the newspaper field. He has been reporter, rewrite man, copy desk man and assistant city editor in Boston. He served in the propaganda division of the army in France following the armistice.

Mr. Charles Capehart, national campaign director, will keep in touch with the New England movement and is expected to bring Metropolitan Opera singers, headed by Miss Marion Talley, the 19-year-old operatic debutante, to Boston, for a special benefit in May.

NOTICES

AMERICAN BOARD OF OTOLARYNGOLOGY

The American Board of Otolaryngology has arranged for two examinations during the month of April, as follows:

St. Paul's Sanitarium, Dallas, Tex., Monday, April 19, at 9 A. M.

Stanford University Medical School, Clay and Webster Streets, San Francisco, Calif., Tuesday, April 27, at 9 A. M.

Applications may be secured from the secretary, Dr. H. W. Loeb, 1402 South Grand Boulevard, St. Louis, Mo.

HELP NEEDED FOR AMERICAN MEDICAL WORK IN RUSSIA

THE Medical Department of the Russian Reconstruction Farms requires equipment and funds for opening and maintaining (1) a small hospital, to take care of the surgical and medical illnesses, and (2) a health center for preventive, especially anti-malarial work in surrounding communities in the Northern Caucasus region of Russia.

The county of 38,000 in which they are located has no hospital, only three Russian doctors, and a scanty supply of drugs and instruments. At present there is but one set of obstetrical instruments in the entire county. An excellent building is available for a hospital, but it is empty of any equipment.

The following are ways in which you can help:

1. Cash contributions may be sent to Dr. John W. Brannan, Treasurer of Medical Fund of Russian Reconstruction Farms, Room 1027, 156 Fifth Avenue, New York City.

2. Donations of surgical instruments, and of all kinds of hospital equipment, may be sent to Dr. E. A. Codman, 227 Beacon Street, Boston.

REPORTS AND NOTICES OF MEETINGS

THE NORFOLK DISTRICT MEDICAL SOCIETY

A REGULAR meeting of the society will be held in the Amphitheatre of the Out-Patient Building of the Massachusetts General Hospital, Tuesday, March 30, 1926, at 4 P. M. (Please note the hour.)

Members are requested to enter the hospital at the Fruit Street entrance. Telephone Hay. 0390.

Business:

Communication:

Presentation of cases from the Fracture Clinic of the Massachusetts General Hospital, Dr. Daniel F. Jones.

Discussion:

Refreshments:

FRANK S. CRUICKSHANK, M.D., *Sec.*
23 Bay State Road.

Support your society by large attendances

LECTURES ON ETHICS

DR. GEORGE G. SEARS gave the first of two lectures on "Medical Ethics" at the Harvard Medical School in Building C Amphitheatre, Wednesday, March 17th, at 5 P. M.

The second lecture will be given Friday, March 19th, at 5 P. M. in the Building C Amphitheatre.

MEETING OF THE NEW ENGLAND ASSOCIATION OF PHYSICAL THERAPY

THE next regular meeting of the New England Association for Physical Therapy will be held Tuesday, March 23rd, at the Hotel Victoria, 271 Dartmouth St., Boston.

The subject will be "Mental Defect" by Dr. Ranson A. Greene, Superintendent of the Walter E. Fernald School. Dr. Arthur H. Ring, Dr. Elmer F. Otis, Dr. Walter B. Swift, and others will discuss this paper. Dr. Walter B. Swift will also read a paper entitled "Psychological Phases of Physical Therapeutics."

All regular physicians are welcome.

GEO. J. OTT, M.D., *President.*

HARVARD MEDICAL SOCIETY

THE next regular meeting of the Harvard Medical Society will be held as usual in the amphitheatre of the Peter Bent Brigham Hospital, March 23, 1926, at 8:15 P. M.

The program follows:—

1. Demonstration of cases.
2. "The Human Spirochaetal Infection," by Richard P. Strong.
3. "Observations on Yaws," by A. W. Sellards.
4. "The Diagnosis of Rat-bite Fever and Observations on Spirochaeta morsus muris," M. Theiler.

All members of the Medical Profession, medical students and nurses are invited.

NEW ENGLAND ROENTGEN RAY SOCIETY

THE regular March meeting of the New England Roentgen Ray Society will be held in the main amphitheatre of the Peter Bent Brigham Hospital on Friday, March 19th, at 8:15 P. M. The following program will be presented.

(1) "A Pineal Localizer," Dr. Jacob H. Vastine and Dr. Kenneth K. Kinney.

(2) "Chronic Progressive Nephritis Produced by the Roentgen Rays," Dr. James P. O'Hare, et al.

(3) "Studies on the Anatomy and Physiology of the Gall Bladder," Dr. Edward A. Boyden (Department of Anatomy, Harvard Medical School).

(4) "The Basal Metabolism in Leukemia," Dr. Cyrus C. Sturgis and Mr. Matthew C. Riddle.

(5) "Demonstration of Unusual Skull Films," Dr. Merrill C. Sosman.

CHARLES W. BRACKETT, *Secretary.*

WACHUSETT MEDICAL IMPROVEMENT SOCIETY

THE regular monthly meeting of the Wachusett Medical Improvement Society was held at Holden District Hospital on March 3, 1926.

After the regular routine business, resolutions on the death of Dr. Halbert Charles Hubbard, who was a member of this Society and passed away on January 8, 1926, were submitted and adopted.

Interesting cases were reported by members present.

Dr. W. A. Bryan of Worcester State Hospital gave the paper of the evening, entitled: "Mental Hygiene of Childhood." He described three factors as influential in the bringing up of any individual:

1st, Physical; 2nd, Mental; 3rd, Social.

Dr. Bryan's paper was very interesting and instructive and stimulated a free discussion.

The next regular meeting of the Society will be held at Holden District Hospital on April 7th.

O. D. PHELPS, *Secretary.*

ADDRESS AT HARVARD MEDICAL SCHOOL

ON March 8th, Dr. Knud Faber, Professor of Internal Medicine at the University of Copenhagen, addressed a large gathering of medical men and students at Harvard Medical School.

Dr. Faber's subject was "The Intestinal Origin of Pernicious Anemia."

He traced the history of research on this disease and then described some recent findings of his own. He pointed out that intestinal atrophy is not characteristic of pernicious anemia and that gastric atrophy need not be present even with complete anacidity.

Achylia has been demonstrated in a number of cases two to ten years previous to the development of pernicious anemia.

Most likely possibilities as to the cause seem to be a deficient gastric digestion resulting from the lack of free HCl in the gastric juice. This enables profuse growth of intestinal organisms high in the intestine. These organisms apparently produce a hemorrhagic toxin. This same change in the intestinal flora may also explain the periodic diarrhoea that occurs in cases with achylia gastrica.

Using the bacteria of the intestine found in these cases, Dr. Faber was able to produce a toxin in vitro which when injected into animals caused anemia, sometimes of the pernicious type.

MEETING OF THE ESSEX SOUTH DISTRICT MEDICAL SOCIETY

THE Essex South District Medical Society held its regular monthly meeting at Lynn Hospital on March 3rd, 1926.

5 P. M. Clinical program:

I. Radiography of the Gall Bladder, Dr. Jacobs.

II. An Obstetric Case, Dr. Hopkins.

III. A Case of Brain Tumor, Dr. Trask.

IV. A Case of Hydrophobia with Nigri Bodies in the Brain, Dr. Viets.

V. (1) Multiple Perforation of Small Bowel. (2) Infection of Coecum and Terminal Portion of Ileum, Dr. Blair.

VI. A Case of Carcinoma of Femur, Dr. Breed.

VII. Drainage of Urinary Bladder in Inoperable Cases, Dr. Johnson.

VIII. Multiple Myeloma, Dr. Damsky.

Dinner at seven was followed by an address on "Some Medical Problems" by Dr. C. E. Mongan of Somerville, Mass.

Attendance 60. Adjourned 10 P. M.

WM. T. HOPKINS, *Reporter.*

THE LAWRENCE MEDICAL CLUB

THE monthly meeting of the Club was held on March 1, 1926 at the Lawrence Y. M. C. A. with Herbert W. Manahan, M.D., of Lawrence. The chairman for the evening being Frederick O. McAllister, M.D., of Lawrence. Dr. Clarence Crane of Boston spoke on the subject of Varicose Veins and presented two successful post-operative clinical cases.

SOCIETY MEETINGS

DISTRICT MEDICAL SOCIETIES

Essex South District Medical Society

Thursday, May 6—Censors meet at Salem Hospital, 3:30 P. M. Tuesday, May 11—The Tavern, Gloucester. Annual meeting. Speaker to be announced.

Essex North District Medical Society

May 12, 1926—The annual meeting at the Anna Jaques Hospital, Newburyport.

Middlesex East District Society

April 14—At the Harvard Club at 6:30 P. M. Address by Dr. William E. Ladd; subject, "Kidney Affections in Childhood."

May—Annual meeting, Colonial Inn, North Reading. Subject and speaker to be announced.

Suffolk District Medical Society

March 31—At 8:15 P. M. Medical Section. "Some Experiments in Group Physical Examination," Dr. Roger I. Lee.

April 28—At 8:15 P. M. Annual meeting. Election of officers. "Some Diagnostic, Prognostic and Therapeutic Aspects of Disorders of the Blood," Drs. George R. Minot, Cyrus C. Sturgis and Raphael Isaacs.

***Notices of meetings* must reach the JOURNAL office on the Friday preceding the date of issue in which they are to appear.**

BOOK REVIEWS

Bone Sarcoma. By DR. E. A. CODMAN. New York: Paul B. Hoeber, Inc. 93 pages. Price, $2.

This little book describes in concise terms the object of the Registry of Bone Sarcoma, the method of collecting and classifying cases, and sets forth and explains the present classification as adopted by the joint committees composed of Drs. Ewing, Bloodgood, and Codman, and Drs. MacCarty, Sondern, St. George, and Bell, for the American College of Surgeons and Clinical Pathologic Society, respectively.

The need of a uniform classification of bone sarcoma for the use of clinicians, roentgenologists and pathologists has long been felt. Terms formerly employed by one man might differ from those used by another and each set of terms might be but vaguely understood except by its author. The committees have endeavored to be as specific as possible, and have retained some of the old terms, with modifications.

The classification consists of eight groups of cases, covering all bone tumors, viz.:

1. Metastatic tumors.
2. Periosteal fibrosarcoma.
3. Osteogenic tumors (benign and malignant).
4. Inflammatory lesions of bone.
5. Benign giant cell tumors.
6. Angioma (benign and malignant).
7. Ewing's tumor.
8. Myeloma.

The clinical, roentgenological, and gross pathological features of each type are described and examples given.

The author invites criticism of the official nomenclature in the spirit of coöperation.

In his endeavor to clarify the atmosphere in regard to the classification of bone sarcoma, Dr. Codman has adopted a method far reaching in scope, and as unbiased and accurate as possible, for he has sent about to the various pathologists and surgeons interested in the subject, the data of typical cases illustrating the various groups and has asked each to put down his preference of name for each particular tumor. More than 700 cases have been so distributed.

The nomenclature is therefore similar to "the greatest common divisor" in arithmetic. It is the simplest which can be agreed on by all. In other words, a patient with a bone tumor must have one of these types, for the existence of other types has not yet been recognized by common use. The subdivisions of these types are relatively unimportant either in prognosis or treatment, except in the case of inflammatory lesions, which are really not within the scope of the discussion. The above types are well defined as a rule, although borderline forms occasionally occur. The book is chiefly concerned with pointing out the salient features of these types which are clear enough to be imparted to students.

It is a simple discussion of a complex subject and will be of value to the coming medical students in different universities, who will be taught the same classification in whatever city they are studying, and will not, as they do at present, hear a different set of names for the same tumor, not only in different clinics but in different departments of the same hospital.

Its chief interest to those not coming in contact with bone tumors will lie in the dedication and in the last two pages entitled "Coöperation with the Registry."

The book is to be reprinted by the American College of Surgeons and distributed in the form of a bulletin to its 7000 and odd members.

Muscular Activity. Professor A. V. Hill, D. S. C., F. R. S. The Herter Lectures for 1924. The Williams and Wilkins Co., Baltimore, 1926. 111 pp. 47 fig. Bibliography. $2.75.

In the Herter Lectures for 1924, now published in book form, Professor Hill summarizes in unusually clear and simple fashion the present state of knowledge of the phenomena of muscular activity. Inasmuch as a large portion of this knowledge is due to the efforts of Professor Hill and his associates, the presentation has the backing of authority. The results of important experiments are cited, and illustrated freely with tracings and graphs, so that no significant step in the argument is missing, but we are not burdened with unnecessary technical detail or extended theoretical argument. The great service of the book is to give the general scientific reader a clear, well-proportioned view of muscle physiology.

A significant feature of this work, repeatedly stressed by the author, is that the main conceptions deduced originally from an intensive laboratory study of excised frog's muscle, have been successfully applied and confirmed in the case of the normal human body. Experimental methods are of necessity indirect in the latter case, and a high degree of refinement of analysis impossible; but it is an important step to establish the similarity of the fundamental process in the two cases. The old reproach of the clinician to the investigator that "from the laboratory he carries facts, bleeding, to the bedside," now loses its force.

The first lecture deals with the dynamics of muscular activity, analyzing the effects produced by the viscosity of muscle which markedly reduce the efficiency of very rapid movements. Then follows a lecture on the heat production of muscle, and the valuable information obtained by its study. The chemical changes accompanying muscular activity are next considered, and are correlated so successfully with the heat production that little doubt remains as to the essential correctness and the completeness in broad outline of the present description. Finally the recovery process after exercise in man is described, and Professor Hill's useful conception of the "oxygen debt" is developed. He shows that the ability of muscle to contract and do work for a considerable period when deprived of both blood and oxygen while accumulating lactic acid, does not represent an artificial trick of the physiologist. It is an important biological mechanism enabling the body to develop tremendous power for a brief time, as in a hundred yard dash, liberating energy from preformed stores at a rate far beyond the capacity

of the circulatory system. The "oxygen debt" is made up afterwards at leisure, while if it had to be supplied at the time "we should never be able to run upstairs, or to run on the flat more than eight or nine miles an hour."

The Surgery of Pulmonary Tuberculosis. By JOHN ALEXANDER, B.S., M.A., M.D. Lea & Febiger, Philadelphia. Price $4.50.

This excellent volume by Dr. John Alexander, Assistant Professor of Surgery in the Medical School of the University of Michigan, is of great value and importance and still more so on account of the introductions by Dr. Hugh Cabot of Ann Arbor and Dr. Edward R. Baldwin of Saranac Lake.

This book is a small volume of 350 pages, consisting of 23 chapters, an elaborate bibliography and an excellent index. It is profusely illustrated, with excellent paper and print, and with the paragraphs briefly titled. An interesting feature of this book consists of the photographs of various physicians and surgeons who have been pioneers in the subject of thoracic surgery. This book, one of the latest and best on this comparatively new field of surgery, is bound to be of great value to general surgeons as well as to those who specialize in thoracic surgery and particularly so to specialists in tuberculosis and diseases of the lungs. As Dr. Alexander himself says, "The time has come when the tuberculosis specialist must keep himself thoroughly posted on the advances that are beoing made with respect to the proper indications and contraindications for surgery and especially with respect to the time when operation should be recommended."

There is need for surgeons to know the field of pulmonary tuberculosis. His chapter on the evolution of surgical therapy is of great historical interest and his chapter on the indications and contraindications for thoracic surgery is of particular value. In brief, he believes that surgery is indicated when more conservative methods of treatment have failed or are liable to fail or when prospects of cure or satisfactory improvement are poor without it. His discussion of the relative advantages of artificial pneumothorax compared with thoracoplasty is sane and sound although he evidently feels that the ultimate results of thoracoplasty are better than those of pneumothorax in certain instances. As a general rule, however, surgical intervention should never be used when satisfactory artificial pneumothorax is obtainable; in other words, a good pneumothorax is better than a bad thoracoplasty but a good thoracoplasty is better than a bad pneumothorax. In another chapter he discusses the choice of operations, partial and complete, and anesthesia. He devotes considerable space to the subject of phrenicotomy and extra and intrapleural pneumolysis. He takes up spontaneous pneumothorax, tuberculous effusion and empyema and their treatment and devotes much attention to the post-operative course, management and complications of this condition.

The book is an excellent one and should be in the library of all surgeons interested in thoracic surgery as well as in that of those physicians interested in diseases of the lung.

Empyema Thoracis. By EVARTS A. GRAHAM, A.B., M.D. C. V. Mosby Company, St. Louis. Price, $2.50.

This book is a small volume of 110 pages and of 13 excellent illustrations and diagrams. The book is well printed on the best of paper, and of particular importance, is divided into paragraphs with a brief title at the head of each which makes it very easy to pick out the particular point of which the reader is in search.

The subject matter consists of an introduction, four chapters, summary and conclusion and the appendix with bibliography. In Chapter I he discusses the pathology of empyema, going into the details of much of the experimental work that has been done on this subject.

In Chapter II he discusses the prevention of chronic empyema. The objects of treatment are to sterilize and obliterate the empyema cavity. He discusses the various methods of doing this.

In the third chapter he takes up the general care and nutrition of the patient and in the fourth chapter discusses such subjects as fistulas communicating with the lung, drainage, pneumothorax in relation to war wounds and the question as to when an empyema may be considered really healed.

To surgeons and to those interested in the surgery of the lung this book will be of very real value.

Pneumonia. By FREDERICK TAYLOR LORD, A.B., M.D.

This little book of Dr. Lord's on *Pneumonia* consists of one of his high grade health talks and is one of a course of public lectures delivered at the Harvard Medical School. He presents the information in regard to this disease in a form easily read and understood by the public. It is naturally not intended for the medical profession although much therein would be of distinct value and interest to physicians. He gives particular attention to the frequency, types and causes of pneumonia. He discusses the various types of pneumococci in considerable detail. He then goes on to consider briefly diagnosis, prognosis and treaatment.

The book is of distinct value for those for whom it is intended.

Human Physiology. By PERCY GOLDTHWAIT STILES. Fourth edition, revised. W. B. Saunders Co., Philadelphia, 1925.

This elementary text-book "for high schools and colleges" is characterized by Professor Stiles' lucidity and charm of presentation. Although in the new preface he excuses the omission of recent advances in physiology resulting from quantitative physico-chemical study, he has nevertheless given a clear account of the latest work on muscular contraction, the outcome of such study. Naturally digestion, nutrition, the special senses and the nervous system, on which Dr. Stiles has written special books, are admirably treated in the present volume. The text concludes with a chapter on Hygiene. Nothing saner or more delicately phrased than the paragraphs dealing with "the fundamentals of sex hygiene" has been published on that difficult subject. The suggestions for collateral reading offer an outlook to further and more advanced study to one who is likely to be enticed into an interest in bodily function by knowing this human physiology. The book is serviceable for students in "high schools and colleges," but also for any layman who wishes an accurate, entertaining and well judged account of the workings of our bodies.

Diseases of the Bronchi, Lungs and Pleura. By FREDERICK T. LORD, M.D. Lea & Febiger,, Philadelphia. Price, $8.

In this second edition of Dr. Lord's already well-known book on diseases of the lung and pleura, the striking addition is a chapter on pulmonary tuberculosis consisting of 110 pages. In addition to this he has added material on atelectasis, bronchoscopy and later developments in the X-ray technique and thoracic surgery.

The reviewer is frank to admit that he considers it a pity that Dr. Lord has included this chapter on tuberculosis in this book. In one chapter of some 200 pages he attempts to cover the whole subject of the diagnosis, prognosis and treatment of this disease as well as considering it from its economic, administrative, social and educational standpoints. Two or three pages are spent, for instance, in discussing tuberculin in the treatment and diagnosis when as a matter of fact this method in treatment especially is practically never used as far as pulmonary disease is concerned. On the other hand, heliotherapy is barely mentioned and occupational therapy not at all. The criteria on which he makes the distinction of active and inactive disease would not be accepted by the majority of men who have studied this condition and his remarks, according to which he apparently doubts the value of sanatorium treatment cannot be called sound.

The whole field of educational methods in the prevention of tuberculosis is covered in one scant paragraph, in which he speaks of Red Cross Christmas seals although these seals have not had anything to do with the Red Cross for many years.

The rest of the book and the additions which have been made are of the high standard of the former edition. The value of the entire book would be enhanced by the omission of the chapter on pulmonary tuberculosis in the reviewer's opinion.

How to Live. By IRVING FISHER and EUGENE L. FISK, M.D. Eighteenth Edition. Funk & Wagnalls Company, New York.

This edition of "How To Live" is written by the Medical Director of the Life Extension Institute and by the Chairman of the Hygiene Reference Board of that Institution. It was first conceived in response to the popular demand which has grown in recent years for instruction in the ways of living for the well, as opposed to treatment of the sick.

The volume contains much of the advice which any commonsense physician would give to his apparently well patient. For the most part the point of view is rational and probably the slight stress laid on mental hygiene and the emphasis on the dangers of tobacco and alcohol are justified. It would seem to the reviewer, who is himself possibly prejudiced, that one side of the picture only is given, and that the commonsense dictum of moderateness in all things is sacrificed in favor of a prohibition which will probably not be obeyed by the great majority of readers.

It is somewhat ludicrous for the Life Extension Institute to pose as the final arbiter on such questions as focal infection. It is also probably unwise to place in the hands of the laity a machinery for making their own judgments with regard to the advisability of removing teeth, tonsils, etc., decisions which often puzzle the experienced physician.

The Diagnosis and Treatment of Tuberculosis of the Hip. By G. R. GIRDLESTONE, B. M. Oxon.; F.R.C.S. Oxford Medical Publications, Humphrey Milford, Oxford University Press.

This short book of less than 100 pages is one of the best examples in medical literature of "multum in parvo." The author is a man careful in observation, sound in judgment, and rich in experience. Moreover, he writes graphically. His diction is clear and his style has charm. He tells us most of what is known about this important disease and rationalizes the treatment he advocates. The excellent illustrations are generous and add greatly to the value of the text. We highly commend the book.

Manual of Gynecology. By JOHN COOKE HIRST, M.D., F.A.C.S. W. B. Saunders Company, Philadelphia, 1925.

Dr. Hirst has put most successfully many gynecological facts in a very compact and readable form The one criticism that can be made of the book is that at times he has made it so compact that clarity has been to some extent sacrificed. This notably is the case in his descriptions of the various surgical procedures. The reader from his descriptions can gain no adequate idea of the proper technique to be used in these operations.

As a book of reference for the busy practitioner, it gives an excellent bird's-eye view of gynecology.

Modern Views on the Toxemias of Pregnancy. By O. L. V. DE WESSELOW and J. M. WYATT. Paul B. Hoeber, Inc., New York, 1925.

The preface of this monograph is dated June, 1923, and the book is published in 1925. It is a most excellent review of the toxemias of pregnancy up to 1923. As the writers say, "The conclusions drawn are to some extent provisional and may with increasing knowledge require revision."

The monograph is the best statement of the toxemias of pregnancy that the reviewer has seen, going thoroughly into the clinical phenomena of the toxemias of pregnancy and the chemical findings of the blood and urine. It will serve undoubtedly as an excellent book of reference.

Midwifery Mechanics. By ANDREW BUCHANAN, I. M. S. Oxford University Press.

Dr. Buchanan has tried by a series of drawings to make clear for the student the problems of the mechanics of obstetries. In his prefatory note he states that his drawings and photographs are to be regarded only as rough diagrams intended to elucidate the points which, although perfectly clear when demonstrated with the help of his models, seem to require rather copious illustration.

Dr. Buchanan's one theme is the theory of the pivot points. His drawings are most interesting, suggestive and helpful, and it would seem that if the models were at hand for the student to use, many of the problems in the mechanics of obstetries would be made clear. That they are made clear, however, as the result of this little book is doubtful in the reviewer's mind. His text is difficult to follow, for one constantly has to turn back to the various plates in order to understand the points that he wishes to drive home.

The book undoubtedly is a useful help in the elucidation of the mechanics of obstetries.

The Advance of Orthopaedic Surgery, by A. H. TUBBY, C.B., C.M.G., M.S., Lond., F.R.C.S. Eng., F.S.A. Illustrated. London: H. K. Lewis & Co., Ltd. 1924.

This little book of 140 pages by Mr. A. H. Tubby is pleasant and profitable reading. It is a reprint of six articles published in the *Clinical Journal* under the following titles:

I. Introductory and Radiological
II. Congenital and Growth Deformities
III. Static and Postural Conditions
IV. Infantile and Spastic Paralysis
V. Reconstructive, Regenerative and Re-Creative Surgery
VI. Re-Education: The Problem of Cripples; The Teaching and Future of Orthopaedic Surgery

The titles well describe the contents. The text is illustrated and the essential bibliography concludes each chapter. The book represents the summing up of the advance in this branch of surgery by a surgeon of wide and long experience and an enthusiastic exponent of the Art. He does not lose sight of its limitations and he appreciates the need for breadth of vision and long and thorough training in general surgery before one essays the practice of this special branch.

The Assaying of Brabantius and Other Verse. By C. S. SHERRINGTON. Oxford University Press, London, 1925.

The author of this charming little book is a worthy addition to our long list of physician-poets, or rather to our longer list of physicians and scientists who have found time for recreation in such a delightful but difficult task as making verse. Sherrington dedicates his small book to another neurologist who has also made very distinct contributions to science, and whose splendid verse during the war did so much to assuage the pain of those who were "too old to fight", Dr. Henry Head. This book, by the Waynflete Professor of Physiology at Oxford, whose researches into the functions of the nervous system have made him world-famous, consists of a single long verse and several shorter ones, some of which have previously appeared in "*The Oxford Magazine*". Many are touching expressions of sympathies and ideals that could only come from the depths of a man who had suffered severe personal losses in 1914-1918. To those who love the touches of beauty as a contrast to our routine daily lives, I heartily recommend this volume by a man who "sees life steadily and sees it whole", both in the laboratory of man's making and in that most marvelous workshop of all, Nature's great outdoors.